THESIS written for M.D.

THE TREATMENT of the EPILEPTIC INSANE by the ADMINISTRATION of BORAX, BELLADONNA, BROMIDE of CAMPHOR, and BROMIDE of POTASSIUM.

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SYNONYMS of EPILEPSY.

The word Epilepsy is from the Greek ἐπίληψις, a seizure, from ἐπιλαμβάνειν, to seize upon.

The Germans call it epilepsie, fallsucht. The French epilepsie, grand mal, haut mal, petit mal. The Italians refer to the disease as epilepsia. The English as epilepsy or fits, while its Scandinavian designation is epilepsiu fallendsot.

From the Latin.

Morbus Sacer - The sacred disease, so called because the priests of Apollo and the Silylline priestesses were either in epileptic fits just prior to the pronouncing of prophecies, or pretended to be so.

Morbus Major - The greater disease, referring to the severer types of Epilepsy in contradistinction to the milder forms of convulsions embracing hysteria, chorea, &c.

Morbus Herculeus - The Herculean disease, so called possibly on account of the resistless grasp of the attack, but more probably because Hercules was a victim of the disease.

Morbus Commitialis - The disease of assemblies, because the occurrence of a fit in a public assembly was deemed so unpropitious that the meeting was broken up.

Morbus Mensalis - The disease of the table, in this case the reference is doubtless due to the frequency with which convulsions were apt to appear while the patient was at table.

Morbus Convivalis - The disease of the feasts - the meaning being same as above.

Morbus Insputatis - The spitting disease.

Morbus Viridellus - The greenish disease, probably so called from the change in the complexion during an attack.

Morbus Vitriolatus - The vitriolate disease - probably an allusion to the colour of Ferrous Sulphate formerly called green vitriol, the temporary colour of the face during an attack suggesting it.

Morbus Soniticus - The serious or dangerous disease. In Roman law it meant any disease excusing from duty.

Morbus Caducus - The falling sickness - the most commonly used of any of the ancient designations.

Morbus Unicatus - The only disease.

Morbus Foedus - The filthy disease, so called because it produces a relaxation of the excreting orifices of the body.

Morbus Sideratus - The star-struck disease. The ancients often thought the epileptic had received a blow from a star, or was blasted by the influence of some heavenly body.

Morbus Sulestus - The criminal disease - alluding to the criminal tendencies it frequently develops.

Morbus Doemoniacus - The disease possessed by demons.

Morbus Deificus - The god-making disease, so called because of its potency in increasing the priest's reputation for sanctity. The Greeks called it "The Priestly Disease."

Morbus Astralis - Another form of the Morbus Sideratus.

Analepsia - Grasping upwards, to seize or grasp, alluding to the victim's throwing up his hands while in a seizure and catching at nothing.

Apoplexia Parva - Small apoplexy.

Passio Caduco et Perdito - The falling sickness combined with a tendency to destructiveness.

Almost as far back as we have records of events the story of the disease called Epilepsy reaches. Long before Medicine, as we know it at the present day, took the shape which separated it from Witchcraft and Sorcery, civil writings incidentally spoke of it, or gave it a name which in its meaning described the affection.

Long before the time of Galen and Hippocrates we find mention of its character, and the famous Greek just mentioned has described it with characteristic accuracy which seems true to the disease as it was hundreds of years ago.

Almost every century since their time has borne in its Medical Annals some account of its symptoms, and probably no disease has given rise to more discussion, both medical and otherwise, than Epilepsy.

On account of its coming on in people publicly it was a well-known disease, and all manner of drugs were tried, but until the last century not much could be done for the disease, medicinally.

THE RELATION OF EPILEPSY TO INSANITY.

(1) Esquirol says: "Epilepsy is a dreadful complaint, not only on account of the violence of its symptoms (in the convulsive form), not only driving one to despair on account of its incurability, but also because of its fatal influence on the physical and moral condition of its victims. The functions of organic life are impaired and become languishing. Epileptics are subject to cardialgia, flatulence, spontaneous lassitude, and trembling; they have a tendency to venery and onanism. Perhaps the excesses they commit are the cause of the organic lesions and of the disorders which manifest themselves when Epilepsy has lasted a long time. The cerebral functions, the intellectual faculties become more and more degraded."

The days when Epilepsy was considered to be a disease apart from insanity have passed away. Long before Dr.Skae classified mental diseases clinically, Epileptic Insanity was recognised and named. Nearly all epileptics tend, naturally, to weak-mindedness, this depending more on the frequency than on the severity of the fits.

(2) Féré says: "It is safe to say that we very rarely meet with epileptics who are well balanced morally and intellectually, even if they enjoy the apparent possession of all their mental faculties; memory is often feeble, and

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(1) Esquirol - "Mental Diseases" vol.I. aet Epilepsy, pp. 282, 283.

(2) Féré - "Twentieth Century Practice of Modern Medical Science" vol.X. p.612. 1897.

this intellectual weakness increases after the paroxysms and is still more marked when they become more frequent and more intense."

(1) Radcliffe says: "The natural tendency of Epilepsy is assuredly towards Dementia; and Dementia is the frequent doom of the epileptic if his disorder is unchecked and life prolonged sufficiently."

Epileptic fits may continue for years with slight or scarcely appreciable mental disturbance, and the affection has been associated with some of the best known names in history, among these may be mentioned, Mahomet, Julius Caesar, and Napoleon Buonaparte.

(2) Clonston says: "It is usual for the Epileptic Insanity not to follow at once the appearance of the fits, generally years elapse before it comes on, and no doubt the more severe and the more frequent the fits the greater is the risk of Insanity; but certain epileptics suffer merely a gradual mental clouding and diminution after years of Epilepsy, while others have furious Mania very soon after the first fits have appeared.

AETIOLOGY.

I. Predisposing Causes.

A. Heredity.

All writers unanimously agree that "Heredity" holds a strong position as a causative of Epilepsy.

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(1) Radcliffe - "Epileptic and other Convulsive Affections of the Nervous System" p.139. 1861. 3rd edition.
(2) Clonston - "Mental Diseases" p.438. 1904. 6th edition.

(1) Macpherson says: "Epilepsy is undoubtedly predisposed to in the great majority of cases by neurotic Heredity, it forms the outstanding example of the transmutability of the neuroses in their transmission from one generation to another."

(2) Clonston states that: "Hereditarily ordinary Insanity and Epilepsy are more closely allied than any other two of the neuroses."

The son or daughter of an epileptic is just as likely to be weak-minded, drunken, or insane as to be epileptic, and certainly Epilepsy is apt to occur in the children of families with a strong insane heredity.

(3) Maurice Craig says: "We usually find a neuropathic inheritance in more than 50 per cent of all cases of Epilepsy. Insanity is commonly found in the parents of epileptics. Epilepsy begets Epilepsy, and we frequently find an epileptic father has an epileptic son."

(4) Deffendorf says that: "Defective Heredity is the most frequent cause of Epilepsy, appearing in 87 per cent of cases where a complete family history was obtained, while in over 25 per cent Epilepsy had existed in the parents."

(5) Church & Peterson state that: "Heredity plays a very important part in the causation of Epilepsy. Epilepsy

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(1) Macpherson - "Mental Affections" p.328. 1899.
(2) Clonston - "Clinical Lectures on Mental Diseases" p.441. 1904. 6th edition.
(3) Maurice Craig - "Psychological Medicine" p.252. 1905.
(4) Deffendorf - "Clinical Psychiatry" p.230. 1904.
(5) Church & Peterson - "Nervous and Mental Diseases" p.566. 1900. 2nd edition.

appears frequently in succeeding generations and may descend directly from parents to children, but is more likely to be indirectly propagated by way of the collateral branches. Epilepsy among cousins is more frequent than among brother and sister."

(1)

Gowers says that: "There are few diseases in the production of which inheritance has more manifest influence than in Epilepsy, and the traceable influence is always far less than that which exists;" and he found that of 2400 cases, in which the point was carefully investigated, such inheritance was traced in 973, or 40 per cent.

From the opening of this (Worcester County & City) Asylum, on August 11th, 1852, up to August 31st, 1905, I find, after going over the Case books, on two occasions, that 1057 patients suffering from Epileptic Insanity have been admitted. Of this number I have been able to ascertain a family history of Heredity, Epilepsy, Phthisis, and Intemperance in only 213 cases; this number is, of course, absurdly small, but is accounted for by the fact that previous to June, 1895, when the Commissioners in Lunacy made it compulsory to investigate into the family history of each case admitted, there was, as a rule, no mention in the notes of the family history.

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(1) Gowers - "Epilepsy and other Convulsive Diseases" pp. 3 & 5. 1901. 2nd edition.

Of the 213 cases where I was able to ascertain the Family History, there were:-

Males	Females
117	96

The annexed table, giving the relatives affected and the numbers, shows:-

A. Males.

Of 117 males a history of Heredity was ascertained in 28 cases, or 23.9 per cent, and the relatives affected were as follows:-

Inheritance.	Cases.	Percentage.	Inheritance.	Cases.	Percentage.
Father	10	35.7	Mother	9	32.1
Paternal grandfather	1	3.5	Maternal grandmother	4	10.7
" grandmother	1	3.5	" grandfather	3	14.2

This shows that the greatest number of males derived their hereditary influence directly from the father, giving 35.7 per cent; the maternal influence accounting for 32.1 per cent. The maternal grandfather and grandmother accounted for 7 cases, or 25 per cent, while, by the same influence on the paternal side, we have only 2 cases, or 7.1 per cent.

B. Females.

Of 96 females a history of Heredity was ascertained in 25 cases, or 26.4 per cent, and the relations affected were as follows:-

Inheritance.	Cases.	Percentage.	Inheritance.	Cases.	Percentage.
Father	10	40	Mother	7	28
ternal grandfather	2	8	Maternal grandfather	3	12
" grandmother	0	0	" grandmother	3	12

showing that, as in the case of the males, the greatest number derived their hereditary influence from the father, giving 40 per cent. The cases coming directly from the mother were 7, or 28 per cent, and again, as in the case of the males, we have the greatest number of cases deriving their hereditary influence from the maternal grandfather and grandmother, giving 6, or 24 per cent, while the paternal grandmother and grandfather only accounted for 2 cases, or 8 per cent.

(1) Gowers states that: "The inheritance is from the mother's side rather more frequently than from the father's."

The following tables show that this holds good in those cases where we have, on both male and female sides, a preference to the maternal side for the influence of inheritance, this being most marked on the male side.

A. Males.

Inheritance.	Cases.	Percentage.
Father's side	12	42.1
Mother's side	16	57.1

(1) Gowers - "Epilepsy and other Convulsive Diseases" p.6. 1901. 2nd edition.

B. Females.

Inheritance.	Cases.	Percentage.
Father's side	12	48
Mother's side	13	52

C. Total of Male and Female.

Inheritance.	Cases.	Percentage.
Father's side	24	45.2
Mother's side	29	54.7

Collateral Heredity.

A. Males.

Of 117 males a history of Collateral Inheritance was ascertained in 50 cases or 42.4 per cent, and the following table shows the relation from whom this inheritance was derived:-

Inheritance		Cases	Percentage
Brother		9	18
Sister		9	18
Maternal	Uncle	8	16
	Aunt	5	10
Paternal	Uncle	7	14
	Aunt	5	10
Paternal cousins		3	6
Maternal cousins		4	8

This shows that the largest number of collateral heredity was derived from brother and sister, being 18, or 36 per cent, the next largest number being from maternal uncle which gives 16 per cent, then comes the paternal uncle with 14 per cent, and the maternal aunts with 10

per cent each. The history of consanguinity gives us 6 per cent for paternal cousins and 8 per cent for maternal.

B. Females.

Of 96 females a history of Collateral Heredity was ascertained in 34 cases or 35.4 per cent, and the following table shows the relation from which the inheritance was derived:-

Inheritance		Cases	Percentage
Brother		6	17.6
Sister		7	20.5
Maternal	Uncle	3	8.8
	Aunt	5	14.7
Paternal	Uncle	3	8.8
	Aunt	6	17.6
Paternal cousin		3	8.8
Maternal cousin		1	2.9

This table shows that, as was the case in the males, the brother and sister here also contribute the largest number of cases of Collateral Heredity, giving 38.2 per cent. The paternal aunt is the next highest, being 17.6 per cent, then the maternal aunt with 14.7 per cent, followed by the maternal uncle, paternal uncle and paternal cousin, these giving 8.8 per cent, and the lowest of all being the maternal cousin with 2.9 per cent.

These tables, therefore, show that the nearest of kin are those most implicated in the collateral inheritance, as in both males and females the brother and sister had given rise to the greatest hereditary influence.

EPILEPSY AS A HEREDITARY CAUSE OF EPILEPSY.

(1) Church & Peterson say that: "Epilepsy appears frequently in succeeding generations, and may descend directly from parents to children, but is more likely to be indirectly propagated by way of collateral branches."

(2) Spratling says, out of 1070 cases which came under his observation - 660 men and 410 women - 105 of the men and 73 of the women had the disease because of the same disease in the parent, the number of the men constituting 15 per cent of the total, while the number of women amounted to 17 per cent of the total. Combining both men and women the percentage of the total number in all cases was 16. It appears from this that more women than men have Epilepsy as a direct inheritance from the parent.

(3) Féré says: "Hereditary transmission of Epilepsy may be direct or indirect, that is to say it may be effected through the ascendants or the collaterals; according to the statistics collected by Echeverria, Bourneville and myself similar Epilepsy seems to be more frequently indirect. Atavistic heredity is often observed, the malady passing from the grandfather to the grandson without affecting the son."

(4) Brown Séquard states: "It is quite certain that people attacked either with organic disease of the Brain and having had no convulsions, or with any kind of neurosis or

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(1) Church & Peterson - "Nervous and Mental Diseases" p.566. 1900. 2nd edition.
(2) Spratling - "Epilepsy and its Treatment" p.64. 1904.
(3) Féré - "Twentieth Century Practice of Modern Medical Science" p.616. vol.X. 1897.
(4) Brown Séquard - "A Dictionary of Medicine by Richard Quain" vol.I. p.594. 1895. 2nd edition.

any form of insanity, very frequently have children who become epileptic," and says that important statistical data, given by Féré, show that among the direct ascendants of 594 epileptics, 70 had suffered from Epilepsy and 166 from Insanity.

Of the 213 cases in which a family history was ascertained, a family history of Epilepsy was obtained in 57 cases, or 26.7 per cent; in the case of the 117 males there were 30 cases, or 23 per cent, and of the 96 females there were 27 cases, or 28.1 per cent.

The following tables show the relations affected:-

A. Males.

Of 117 males a family history of Epilepsy was ascertained in 30 cases, or 23 per cent, and the following are the relatives affected:-

Epileptic Heredity	Cases	Percentage
Father	4	13.3
Paternal grandfather	1	3.3
" grandmother	0	0
" uncle	1	3.3
" aunt	0	0
Mother	5	16.6
Maternal grandfather	0	0
" grandmother	0	0
" uncle	0	0
" aunt	4	13.3
Brother	5	16.6

Epileptic Heredity	Cases	Percentage (contd.)
Sister	8	26.6
Paternal cousin	2	6.6
Maternal cousin	0	0

This table coincides with the remarks of Church & Peterson,(1) who say that Epilepsy is more likely to be indirectly propagated by way of collateral branches, for we find that the collateral branches account for no less than 20 cases, or 66.6 per cent in the above table. The sister shows the highest number, being 26.6, brother and mother coming next with 16.6 per cent each, then the father and maternal aunt show 13.3 per cent, the paternal cousin 6.6 per cent and paternal grandfather and paternal uncle 3.3 per cent.

B. Females.

Of 96 females a family history of Epilepsy was ascertained in 27 cases or 28.1 per cent, and the following are the relatives affected:-

Epileptic Heredity	Cases	Percentage
Father	2	7.4
Paternal grandfather	0	0
" grandmother	1	3.7
" uncle	1	3.7
" aunt	0	0
Mother	4	14.8
Maternal grandfather	0	0
" grandmother	1	3.7

(1) Church & Peterson - "Nervous & Mental Diseases" p.566. 1900. 2nd ed.

Epileptic Heredity	Cases	Percentage (contd.)
Maternal uncle	2	7.4
" aunt	2	7.4
Brother	5	18.5
Sister	6	22.2
Paternal cousin	2	7.4
Maternal cousin	1	3.7

Here again, as in the males, we find Epilepsy propagated by the collateral branches in 19 cases or 70.3 per cent. The largest number is again also shown by the sister, being 22.2 per cent, and almost the same order follows as in the males, the brother coming next with 18.5 per cent, then the mother with 14.8 per cent, then the father, maternal aunt, and uncle and paternal cousin with 7.4 per cent, and lastly paternal grandmother, uncle, and maternal grandmother and cousin with 3.7 per cent.

Church and Peterson say, Epilepsy among cousins is more frequent than among brothers and sisters. This is not the case in the above tables where there are only 2 cases or 6.6 per cent accounted for by cousins in the male table, and in the female table only 3 cases or 11.1 per cent. The order in these tables being that the sister comes first, then the brother, and then the mother.

PHTHISIS AS A CAUSATIVE OF EPILEPSY.

There is a diversity of opinion among writers as to whether Phthisis can be designated as a cause for Epilepsy.

(1)
Gowers says: "It is certain that the family history of epileptics presents a large proportion of cases of Phthisis, but the coincidence is probably accounted for by the commonness of lung disease. Phthisis was inquired for in 300 cases and a history of it in parents, grandparents, brothers or sisters, uncles or aunts, was obtained in 108, or 36 per cent;" and he goes on to say that "if Phthisis has any influence in causing Epilepsy we should expect to find it traceable more frequently in the cases without than in those with neurotic inheritance, but it is not so;" and also says that "Dr.F.Roberts questioned on this point several hundred patients suffering from Phthisis, and the proportion in which any relative was known to have suffered from fits was only 12.40. These facts seem sufficient to make further investigation superfluous."

(2) Spratling says, in taking up Tuberculosis as a possible predisposing factor in Epilepsy, "We are treading on delicate ground. In 1070 cases of Epilepsy a distinct tuberculous history in the parents was found in 101 men and 50 women, making 15 per cent in the former and 12 per cent in the latter, altogether 151, equal to 14 per cent of the entire number. This percentage," he says, "seems extraordinarily high and can only be accounted for in this way - Tuberculosis in the parents either predisposes to Epilepsy in the offspring, or it is so common as to make

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(1) Gowers - "Epilepsy and other Convulsive Diseases" pp. 9 & 10. 1901. 2nd edition.

(2) Spratling - "Epilepsy and its Treatment" p.70. 1904.

it appear influential when it may only be an incidental affection," and adds, "it has been claimed, says Hare, by those who ought to know, that a family history of Phthisis is a cause of Epilepsy." In conclusion he states that in his opinion Phthisis may grant a predisposition to some forms of Epilepsy. If there is well-marked Phthisis in the parent at the time of conception there seems to be no reason why a general tendency to disease may not be given to the child.

(1) Clonston proved in 1863 that one of the causes of Insanity was Phthisis, and named this form of mental disease "Phthisical Insanity," which is now generally recognised.

He says that in Epilepsy, Phthisis is not so frequent as in ordinary cases of Insanity, although Van der Kolk found that all the epileptic patients who had bitten the tongue, died of Phthisis, Pneumonia, or Marasmus; and Brown Sequard found either tubercular deposit in the lung, or pneumonia of the opposite lung from the disease of the medulla in 4 cases of Epilepsy. In Table 8, showing the forms of insanity assumed by 282 cases of Tuberculosis, 17 were epileptics, giving 6.02 per cent.

If Phthisis is a cause of Insanity then it will also be a predisposing cause of Epilepsy. Clonston (2) says the Insanity is cured by Phthisis on account of Brain Anaemia, and as brain anaemia is a recognised cause of convulsions,

(1) Clonston - Journal of Mental Science, April, 1863. art. "The connection between Tuberculosis and Insanity."
(2) Clonston - "Clinical Lectures on Mental Diseases" p.508. 1904. 6th edition.

Phthisis may well be considered as a predisposing cause of Epilepsy.

Of the 213 cases where a family history was ascertained, such a history of Phthisis was obtained in 38 cases or 17.8 per cent.

A. Males.

Of 117 males a family history of Phthisis was ascertained in 15 cases or 12.8 per cent, and the following are the relatives affected:-

Phthisical Predisposition	Cases	Percentage
Father	1	6.6
Paternal grandfather	2	13.3
" grandmother	0	0
" uncle	0	0
" aunt	0	0
Mother	4	26.6
Maternal grandfather	0	0
" grandmother	0	0
" uncle	2	13.3
" aunt	2	13.3
Brother	1	6.6
Sister	2	13.3
Paternal cousin	1	6.6
Maternal cousin	0	0

The greatest Phthisical predisposition was shown in the case of the mother, the total being 4, or 26.6 per cent, then the paternal grandfather, maternal uncle and sister each gave 13.3 per cent, the father, brother and

paternal cousin showing each 6.6 per cent.

B. Females.

Of 96 females a family history of Phthisis was ascertained in 23 cases or 23.9 per cent, and the following are the relatives from whom the predisposition was derived:-

Phthisical Predisposition	Cases	Percentage
Father	4	17.3
Paternal grandfather	1	4.3
" grandmother	0	0
" uncle	0	0
" aunt	1	4.3
Mother	5	21.7
Maternal grandfather	0	0
" grandmother	0	0
" uncle	4	17.3
" aunt	3	13.04
Brother	2	8.6
Sister	3	13.04
Paternal cousin	0	0
Maternal cousin	0	0

As in the case of the males, the mother with 21.7 per cent again shows the greatest number as regards Phthisical predisposition, the father and maternal uncle 17.3 per cent, then the sister and maternal aunt 13.04 per cent, brother 2 per cent, and paternal grandfather and paternal aunt 4.3 per cent.

These tables both showing that the predisposition from Phthisis comes from a direct source in the largest

numbers, namely the mother, and in both male and female tables the maternal relations contribute more cases than the paternal, so these tables show that the mother and her relatives are more liable to exhibit Phthisical predisposition than the paternal side.

ALCOHOLISM.

(1) Brown Séquard says the power of Alcoholism is so great that out of 594 epileptics studied by Féré, 258 had parents addicted to habits of hard drinking.

(2) Spratling says that out of 1070 cases - 111 men and 51 women - 16 per cent of the former and 12 per cent of the latter yielded a dissimilar hereditary factor of Alcoholism in the parent, which led to Epilepsy in the child; and states that Bourneville studied 2554 children admitted to the Bicêtre and Fondation Vallée - 2072 boys and 482 girls - all of them suffering from Idiocy, Epilepsy, Imbecility, or Hysteria, found that 1053 of them were the offspring of drunken parents, 933 having drunken fathers and 80 drunken mothers. He also quotes Sullivan, who found that out of 219 children of alcoholic mothers, who lived beyond infancy, 4 per cent of them became epileptics.

(3) Maurice Craig states: "Alcoholism in the parent is a potent factor in the production of Epilepsy in the children." This observation has been increasingly confirmed during recent years and lends weighty support to

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(1) Brown Séquard - Quain's Dictionary of Medicine. Art.on "Epilepsy" vol.I. p.594. 1895. 2nd edition.
(2) Spratling - "Epilepsy and its Treatment" p.68. 1904.
(3) Maurice Craig - "Psychological Medicine" p.252. 1905.

the arguments for placing alcoholic persons under proper restraint and treatment.

Out of 213 cases where a family history was ascertained, a history of Intemperance was obtained in 47 cases or 21.5 per cent.

A. Males.

Of 117 males a history of Intemperance was obtained in 27 cases or 23.07 per cent, and the side from which the predisposition came is shown as follows:-

Predisposition of Intemperance	Cases	Percentage
Father	20	74.07
Mother	7	25.9

B. Females.

Of 96 females a history of Intemperance was ascertained in 20 cases or 20.8 per cent, and the side from which the predisposition arose is shown as follows:-

Predisposition of Intemperance	Cases	Percentage
Father	12	60
Mother	8	40

C. Males and Females.

Of 213 males and females a family history of Intemperance was obtained in 47 cases or 21.5 per cent, and the following shows from which side the predisposition arose:-

Predisposition of Intemperance	Cases	Percentage
Father	32	68.08
Mother	15	31.9

The Tables show that the predisposition of Intemperance was more frequent on the father's side than on that of the mother, probably due to the fact that more men are addicted to drink than women.

There can be little doubt that a family history of Intemperance in the parents predisposes to Epilepsy in their offspring, and this appears to affect the children more readily than the adults; unfortunately I am unable to show the ages of the patients whose parents were addicted to drink.

FAMILY PREDISPOSITION.

	Heredity.	Collateral Heredity.	Epilepsy.	Phthisis.	Drink.
Males 117	37 or 31.6 p.c.	50 or 42.7 p.c.	30 or 25.6 p.c.	15 or 12.8 p.c.	27 or 23.2 p.c
Females 96	33 or 34.3 p.c.	34 or 35.3 p.c.	27 or 28.1 p.c.	23 or 23.9 p.c.	20 or 20.8 p.c.
Total of 213 Males & Females	70 or 32.8 p.c.	84 or 39.4 p.c.	57 or 26.7 p.c.	38 or 13.1 p.c.	47 or 22 .06 p.c.

FAMILY PREDISPOSITION.

| | Heredity. | | | | | Collateral Heredity. | | | | | | | | Epilepsy. | | | | | | | | Phthisis. | | | | | | | | Drink. | | | | | | | |

B. The Influence of Age on the Occurrence of Epilepsy.

Epilepsy is a disease of all ages, but most writers agree that it is far more common for it to commence during the first 20 to 25 years.

(1)
Gowers gives the following table which shows the influence of age on the occurrence of Epilepsy, being ascertained from the time of life at which the first fit occurred in a series of 3000 cases.

under 10 years.	826	27.5	per cent of the total number.
10 - 19 "	1398 "	46.5	" " " " "
20 - 29 "	463 "	15.5	" " " " "
30 - 39 "	186 "	6.3	" " " " "
40 - 49 "	71 "	2.4	" " " " "
50 - 59 "	40 "	1.3	" " " " "
60 - 69 "	15) "	.5	" " " " "
70 - 79 "	1) "		

and this table he sums up as follows:- More than a quarter of all cases began under the age of ten years: nearly half between ten and twenty: about a seventh between twenty and thirty: a sixth between thirty and forty: about 2½ per eent only between forty and fifty: 1 per cent only between fifty and sixty: after which half of 1 per cent only occur. Seventy-four per cent of the total number of cases begin under twenty.

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(1) Gowers -"Epilepsy and other Chronic Convulsive Diseases," pp.12 & 13. 1901. 2nd edition.

(1)
Spratling out of 1302 cases gives the following tables:-

	cases.		
Under 10 years	499	38.5	per cent of the total number
10 to 20 "	566	43.5	" " " " "
19 to 29 "	125	9.5	" " " " "
29 to 39 "	54	4	" " " " "
39 to 49 "	27	2	" " " " "
49 to 59 "	11)		
	)	1.75	" " " " "
59 to 69 "	12)		

(2)
Letchworth states that, from the opening of the Ohio State Hospital for Epileptics in 1893 to November 30, 1898, there were admitted to that institution 1295 patients, and the ages at which they suffered from the first attack of Epilepsy thus given:-

	cases.
In Infancy	339
Between five & ten years	194
" ten & fifteen "	296.
" fifteen & twenty "	173
" Twenty & thirty "	159
" Thirty & forty "	61
" Forty & fifty "	20
Over fifty years	14
Unknown	39

(3)
Clonston says by far the majority of cases of true

(1) Spratling - "Epilepsy and its Treatment", pp 49 & 50.1904.
(2) Letchworth - "Care and Treatment of Epileptics," p.9.1900
(3) Clonston - "Clinical Lectures on Mental Diseases," p.455 1904. 6th edition.

Epilepsy first arise during the growth period from birth up to 14; or in the developmental period (from 13 to 25) of life.
(1)
Reynolds found that out of 81 cases, in 40 Epilepsy commenced between the ages of six and seventeen.

Out of the 1057 patients admitted into this Asylum, suffering from Epileptic Insanity, from 1852 to 1905, I have been able to ascertain the age at which Epilepsy first commenced in only 361 cases, of these there were:-

Males	Females
170	191

The following tables show the number of cases that occurred each year from Infancy up to 75 years of age:-

Females - 191.

Year.	Cases.	Year.	Cases.	Year.	Cases.	Year	Cases.
Infancy.	38	23	2	46	1	69	0
1	2	24	0	47	1	70	0
2	5	25	3	48	2	71	0
3	2	26	3	49	0	72	0
4	4	27	1	50	0	73	0
5	5	28	3	51	0	74	0
6	2	29	1	52	0	75	1
7	4	30	0	53	0		
8	7	31	1	54	1		
9	5	32	2	55	0		
10	5	33	1	56	0		
11	1	34	1	57	0		
12	7	35	1	58	0		
13	8	36	1	59	0		
14	12	37	0	60	0		
15	7	38	1	61	0		
16	5	39	1	62	0		
17	5	40	2	63	0		
18	2	41	0	64	0		
19	2	42	0	65	1		
20	3	43	1	66	0		
21	3	44	3	67	0		
22	0	45	1	68	0		

(1) Reynolds - "Epilepsy, its symptoms, treatment and relation to other chronic convulsive diseases" p.126. 1861.

Males - 170.

Year.	Cases.	Year.	Cases.	Year.	Cases.	Year.	Cases.
Infancy	35	22	3	44	0	66	0
1	2	23	1	45	2	67	1
2	9	24	1	46	3	68	0
3	5	25	4	47	2	69	0
4	2	26	3	48	0	70	0
5	11	27	1	49	0	71	0
6	2	28	2	50	0	72	0
7	6	29	1	51	0	73	0
8	6	30	5	52	0	74	0
9	1	31	2	53	0	75	0
10	4	32	1	54	1		
11	9	33	1	55	2		
12	5	34	1	56	0		
13	4	35	2	57	0		
14	7	36	1	58	0		
15	6	37	1	59	1		
16	5	38	1	60	0		
17	6	39	1	61	0		
18	4	40	2	62	0		
19	2	41	3	63	1		
20	4	42	0	64	2		
21	4	43	0	65	0		

By changing the yearly table into decimal periods, the number and percentage for each age are as follows:-

Females

		cases			Females
Under 10 years	74	or 43.5	per cent	of the total number of	170
10 to 19 "	54 "	31.7	"	"	"
20 " 29 "	19 "	11.1	"	"	"
30 " 39 "	9 "	5.2	"	"	"
40 " 49 "	11 "	6.4	"	"	"
50 " 59 "	1 "	.58	"	"	"
60 " 69 "	1 "	.58	"	"	"
70 " 79 "	1 "	.58	"	"	"

Males.

		cases				
Under 10 years		79	or	41.3	per cent of the total number of	191 Males
10 to 19	"	52	"	27.2	" "	"
20 " 29	"	24	"	12.5	" "	"
30 " 39	"	16	"	8.3	" "	"
40 " 49	"	12	"	6.2	" "	"
50 " 59	"	4	"	2.09	" "	"
60 " 69	"	4	"	2.09	" "	"
70 " 79	"	0	"	0	" "	"

Males and Females.

		cases				
Under 10 years		153	or	42.3	p.c. of total number of	361 Males & Females
10 to 19	"	106	"	29.3	" "	"
20 " 29	"	43	"	11.9	" "	"
30 " 39	"	25	"	6.9	" "	"
40 " 49	"	23	"	6.3	" "	"
50 " 59	"	5	"	1.3	" "	"
60 " 69	"	5	"	1.3	" "	"
70 " 79	"	1	"	.2	" "	"

These tables demonstrate the same facts which were proved by the investigations made by the above writers quoted, and who agree unanimously that the chief periods when Epilepsy first exhibits its presence are during the growth and developmental periods.

(a) The yearly Female table shows that in by far the largest majority of cases Epilepsy commenced during infancy; the numbers being 38 or 23.3 per cent of the total 170 - after this the figures keep comparatively low until the 8th year when they rise to 7, or 3.6 per cent, this increase being probably caused by the second dentition; this is followed by another decline to the 12th year, after which the numbers rose until they attained their maximum at the 14th year when we have the next highest number after infancy, giving 12, or 6.2 per cent, probably due to the influence of the epoch of puberty, although the following two years fall to 7, or 3.6 per cent in the 15th year and to 5, or 2.8 per cent in the 16th year. After the 18th year the final decline sets in. From 40 to 50 years we have 11 cases, or 5.7 per cent, probably due to the influence of the menopause.

(b) The yearly Male table also shows that the onset of Epilepsy first showed itself in by far the largest majority of cases during infancy, the number being 35, or 18.3 per cent.

After this the Male table does not exhibit such a marked decline in the early years, for at the 12th year we have 9 cases, or 5.2 per cent after which there is a decline to the 5th year when there are 11 cases, or 6.4 per cent, during the 6th year there is a decided fall which rises again in the 7th year, probably due to the second dentition, when we have 3.4 per cent; after this there is another decided fall to the 11th year when we have 5.2 per cent, followed by a decline to the 14th year when there

are 7 cases, or 4.1 per cent; the numbers after this keeping comparatively low up to the 30th year after which the final decline commences.

The influence of the epoch of puberty is less marked in this table than in that of the Females.

These tables also show that under 30 years of age Epilepsy first began -

Out of 170 females in 147 cases, or 86.4 per cent.

Out of 191 males in 155 cases, or 81.1 per cent

giving a total of 202 cases, or 55.9 per cent out of 361 males and females whose Epilepsy commenced under the age of 30 years.

These tables demonstrate that Epilepsy may first begin late in life.

In the yearly Female table there are 2 cases where Epilepsy began after the age of 60 years.

In the yearly Male table we find 5 cases where Epilepsy began after the age of 58 years.

(1) Clonston says: "Epilepsy may begin in the course of chronic Insanity of many years' duration apparently through advance of disease from the mental into the motor centres of the Brain;" and he says: "I refer to those cases of chronic Insanity, usually dements, who become epileptic beginning to take periodic fits after being many years insane, and then going on taking them regularly:" he states

(1) Clonston - "Clinical Lectures on Mental Diseases," p.440. 1904. 6th edition.

he has seen about a dozen such cases.

(1)
Trousseau says: "One of the most celebrated military men of our time became epileptic when eighty years old and died in a fit thirteen years afterwards."

In this (Worcester County & City) Asylum there are, at present, 2 patients, and I have found records of another patient who died here, in whom Epilepsy began in advanced years.

A short summary of these cases are as follows:-

E.L.admitted March 5, 1892, aged 56, suffering from dementia, which has become more and more marked so that he is now completely lost, being quite unable to answer simple questions, and requiring constant attention to all his bodily requirements. Physically he is feeble shaky, circulation sluggish and arteries atheromaton. No history of fits previous to his admission. On March 4, 1903, he had his first epileptic seizure, being then in his 67th year, since this date he has had fits regularly.

J.G. admitted February 14, 1882, aged 49, suffering from dementia, which has now become very marked. Physically he is very feeble and shaky. On February 24, 1906, he was walking through the ward when he had a severe epileptic seizure, and bruised his face badly in falling, he was put to bed as he could not stand and

(1) Trousseau - "Lectures on Clinical Medicine." The New Sydenham Society, vol.35, p.51. 1867.

was very feeble and stupid, and during the evening he had another fit as severe as the first; he is now in his 73rd year. There was no previous history of Epilepsy in this case.

L.P. admitted April 2nd, 1890, aged 62, died February 28, 1906. On admission was suffering from mania, but gradually became demented, and in her latter years markedly so, was bedridden, suffering from chronic Rheumatoid Arthritis, no history of Epilepsy previous to her admission. On August 18, 1903, she had 3 severe epileptic seizures, being then in her 75th year, and from this date up to her death she had fits regularly.

C. Influence of Sex as a Predisposing Cause of Epilepsy.

There is a great diversity of opinion among authorities as to the percentage number of cases of Epilepsy occurring in the members of the two sexes.

(1) Clonston says Epileptic Insanity is not nearly so common among women as men.

(2) Sieveking says English authors are all but unanimous as to the greater proclivity to Epilepsy being on the side of the male sex, while the majority of Continental writers take the opposite view, and that he analysed 104 cases giving 47 females and 57 males.

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(1) Clonston - "Clinical Lectures on Mental Diseases," p.444. 1904. 6th edition.

(2) Sieveking - "Epilepsy and Epileptiform Seizures," p.106. 1861. 2nd edition.

(1)
Gowers states that: "Females suffer from Epilepsy rather more frequently than males," he ascertained these facts from 2 series of cases, in one there being 1450 cases and in the other 1550, the sexual percentage of each series and of the whole being as follows:-

First series	Second series	Total.
1450 cases	1550 cases	3000 cases.
Females 53.4 per cent	F. 50.7 per cent	F. 52 per cent.
Males 46.6 per cent	M. 49.3 per cent	M. 48 per cent.

He also says that in most statistics of Epilepsy hitherto collected in this country, males have preponderated, and states that this is probably due to the inclusion of cases in which recurring convulsions were the consequence of an organic cerebral lesion, such disease being usually due to syphilis or injury, and both of these cases influence males more frequently than females.

(2)
Reynolds says it is a common belief that Epilepsy is more frequent among females than males, and quotes De-
(3)
lasiance, who states that in 1820 there were in the Salpêtrière 321 female epileptics; in Bicêtre 160 male epileptics; whereas in 1854 there were in the same institutions, respectively, 400 females and 200 males.

Reynolds says: "So far as my own observations extend,

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(1) Gowers - "Epilepsy and other Chronic Convulsive Diseases," p.2. 1901. 2nd edition.

(2) Reynolds - "Epilepsy, its Symptoms, Treatment and Relation to other Chronic Convulsive Diseases," pp.124-125.1861

(3) Delasiaance- "Traité de l'Épilepsie," p.195.

I have found little difference between the sexes; and the difference I have observed has been that a larger number of epileptic males came under my care than females, the proportions in 88 cases being 49 of the former, and 39 of the latter.

(1) Althaus collected in all over 54000 cases, dividing them into five-year periods, 28690 of them being men, and 25482 women.

(2) Echeverria says that in his experience the greater proclivity to Epilepsy is displayed by males, and says that "Epileptical Insanity has come under my close observation in 118 cases of whom 55 were males and 63 females."

He also quotes Girard de Cailleux (3) elaborate statistics as being the foremost among those furnished by contemporary French writers: the total number of patients treated at the Asylum of Auxerre, from 1841 to 1857, amounted to 1506, of these 148 were epileptics; 91 males and 57 females.

(4) Brown Séquard says, as regards the influence of sex, there is a marked difference between men and women of somewhat advanced age; the proportion of epileptic females being then larger than that of the males, but for people under 25 years of age the reverse is true.

(5) Hughes Bennett found that in one hundred unselected cases of Epilepsy there were:-

Males 47 per cent. Females 53 per cent

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(1) Althaus - "Diseases of the Nervous System" p.222.
(2) Echeverria - "Anatomo-Pathological & Clinical Notes on Epilepsy" pp.149-150,359. 1870.
(3) Girard - "Etudes Pratiques sur les Maladies Nerveuses et Mentales" pp.24,26,84. 1863.
(4) Brown Séquard - Quain's Dictionary of Medicine, vol.I. p.594. 1895. 2nd edition.
(5) Hughes Bennett - "A Statistical Enquiry into the nature and treatment of Epilepsy" p.6. 1884.

showing that practically the sexes were affected in equal proportions.

(1) Maurice Craig says females suffer from Epilepsy to a somewhat greater extent than males.

(2) Church & Peterson say that the two sexes are about equally affected.

I have made records of all patients suffering from Epileptic Insanity who have been admitted into this (Worcester County & City) Asylum since it was opened on August 11, 1852, up to August 31, 1905, and find that during these years:-

The total number of admissions has been 9310 of this number there were

Males	Females
4593	4717

Of the 9310 total admissions, 1057 were suffering from Epileptic Insanity, being 11.36 per cent.
Of this number there were

Males	Females
589	468

giving 55.72 per cent of males and 44.47 per cent of females.

Of the above quoted writers, those whose remarks concern Epileptic Insanity are Clonston, Echeverria, Girard, Craig, Church & Peterson; the others confine themselves

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(1) Maurice Craig - "Psychological Medicine" p.252. 1905.
(2) Church & Peterson -"Nervous and Mental Diseases" p.566. 1900. 2nd edition.

to uncomplicated Epilepsy. These six do not agree as to the influence of sex in Epileptic Insanity, Clonston, Craig, and Echeverria favouring the influence of the women: Girard's statistics show a large preponderance on the male side, while Church & Peterson believe the sexes to be about equally affected.

The above figures I have shown agree with Girard, the males being largely in excess.

On this, the 4th March, 1906, there are 1202 patients in this Asylum

Males	Females
544	658

Of this total of 1202 there are 208 epileptics

Males	Females
108, or 8.9 p.c.	100, or 8.3 p.c.

EXCITING CAUSES.

The percentage is from totals of 171 males and 96 females.

Infantile.	Mental Emotion.	Trauma.	Acute Diseases.	Miscellaneous
M. F.	A. Fright.	A. Blow or Fall.	A. Scarlet Fever.	A. Chronic Alcoholism.
1 or	M. F.	M. F.	M. F.	M. F.
1.04 per cent.	1, or 3, or	9, or 2, or	0 3, or	2, or 1, or
	.58 p.c. 2.1 p.c.	5.2 p.c. 2.08 p.c.	2.1 p.c.	1.1 p.c. 1.04 p.c.

B. Grief.	B. Sunstroke.	B. Influenza.	B. Chorea.	C. Overwork.
M. F.	M. F.	M. F.	M. F.	M. F.
0 1, or	2, or 0	1, or 0	0. 1, or	0 1, or
1.04 p.c.	1.1 p.c.	.58 p.c.	1.04 p.c.	1.04 p.c.

The following are the different exciting causes of Epilepsy, giving the percentage of each of the totals of 28 cases.

	Percentage
Infantile	3.5
Mental emotion	
(a) Fright	14.2
(b) Grief	3.5
(c) Overwork	3.5
Traumatic Causes	
(a) Blow or kick on head	39.2
(b) Sunstroke	7.1
Acute Diseases	
(a) Scarlet Fever	10. 7
(b) Influenza	3.5
Miscellaneous	
(a) Chronic Alcoholism	10.7
(b) Chorea	3.5

II. EXCITING CAUSES.

Out of the 213 cases, 171 males and 96 females, in which I was able to ascertain a family history, I have obtained a history of an exciting cause in only 28 cases, 15 males and 13 females, the chief reason for this low number being the difficulty experienced in obtaining the previous history of cases admitted - some being brought by the Police, who know often nothing of the patient's history, others (generally so) by the Relieving Officers who also too frequently display a limited knowledge of the case, and the history given by friends and even relations being often of such a nature as to be of little importance. So it is a very difficult matter in Asylums to get a clear and truthful account of the previous history of the epileptic patient.

A. Infantile.

Although out of 213 cases above mentioned, in 23.3 per cent females and 18.3 per cent of males, in whom Epilepsy commenced during infancy, I am unable to find any reference to the fact that their convulsions were in any way associated with dentition. One case only appears to be of an infantile origin, and even that is of a doubtful nature.

D.B. for first nine months after birth had a discharge from both ears. At the 9th month she had her first fit and continued to have them after; when fits commenced the discharge from ears ceased; there is no mention of her having had Scarlet Fever, and no family predisposition

to Insanity or Epilepsy. I attach little importance to this case as the history is too scanty to form a conclusion as to the relation of the otorrhoea and the onset of Epilepsy.

(1) Spratling designates one kind of Epilepsy as "Auditory Epilepsy," a form of Epilepsy which he says is due to disease of the middle ear.

(2) Echeverria, in a table giving the nature of causes of Epilepsy, out of 284 cases quotes one caused by otorrhoea - a female.

B. Mental Emotion.

(3) Gowers says, of all the immediate causes of Epilepsy the most potent are Psychical - fright, excitement, anxiety. Of the three forms of emotion, fright takes the first place, it is effective chiefly in early life. Of 173 cases he found only 14 commencing from this cause after thirty years of age, and 145 commenced under twenty, of these the majority, 102, commenced between ten and twenty, only 43 before ten. Of the 173 cases 61 per cent were females and 39 per cent males.

(4) Spratling states that he found emotional shock, or fright to have been the cause in 62, or 5½ per cent cases out of a total of 1323. Of these 22 were men in a total of 814 and 40 were women in a total of 509, being about

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(1) Spratling - "Epilepsy and its Treatment" p.25. 1904.
(2) Echeverria - "Anatomo-Pathological and Clinical Notes" p.207. 1870.
(3) Gowers - "Epilepsy and other Chronic Convulsive Diseases" p.25. 1901. 2nd edition.
(4) Spratling - "Epilepsy and its Treatment" pp.98-100. 1904.

3 per cent among the former and nearly 8 per cent among the latter, showing the cause to be nearly three times as active among women as among men. He also states that he found prolonged anxiety, grief and overwork as causes in 16 out of 509 women, and 6 out of 814 men, being about 3 per cent of the former and about two-thirds of 1 per cent of the latter.

In the accompanying table of Exciting Causes there are 4 cases of Epilepsy caused by Fright, 3 females and 1 male, 1 female by grief and 1 female by overwork.

(a) M.E.G. was a bright and healthy child up to the age of 14 years when she was bitten by a dog, and the fright she sustained was followed by an epileptic fit, and these fits continued at intervals after.

(b) A.H. She was well and had no fits up to 9 years of age when she had a severe fright which marked the onset of her Epilepsy; it was not stated how long after fright fit occurred, or what the nature of the fright was.

(c) E.H. Up to 9 years of age she was a bright and intelligent girl when, owing to fright, she became an epileptic.

(d) G.H. He is stated to have been a well-behaved boy, healthy in every way until, at the age of 12 years, he fell into the water while skating on a pond, and was

unconscious for a long time after; after this occurrence he was never the same, being dull, morose, and irritable, and 6 years later had his first epileptic fit.

(e) E.T. She was well and had no fits until the death of her husband, after which she was never the same, giving way to great grief, and a year later had her first epileptic fit at the age of 41 years.

(f) B.M.W. She was a bright and intelligent girl, and her father says learnt with great ease and got on well at school, where she appears to have been very anxious and worked very hard. At the age of 5 years she had her first fit which her medical attendant, whom I also questioned on the case, said was due to overwork. She has since had regular and severe fits and is now demented.

These six cases where cause of Epilepsy was supposed to be due to mental emotion, show that it affects females more than men, as we have 5 females to 1 man; and they form 21.4 per cent of the total 28 cases, of which I was able to ascertain causes of Epilepsy.

C. Traumatic Causes.

Trauma, as a cause of Epilepsy, is unanimously recognised by writers, and also its more frequent occurrence in males, due to the risk of occupation.

Spratling says, in 509 women which came under his observation, it was the cause in 18 only, or about 3½ per cent; while in 814 men it was the cause in 70, or about

(1) Spratling - "Epilepsy and its Treatment" p.107. 1904.

8½ per cent, being nearly three times greater in men than in women.

(1) Deffendorf says head injuries are frequently assigned as the cause of Epilepsy, and in a certain number of cases a direct relation between these can be traced, and quotes Wildermuth who gives the frequency as 3⅜ per cent, and Heeres as 4 2/10 per cent.

Blow or Fall.

In the table of exciting causes, a blow or a fall on the head was the supposed cause of Epilepsy in 11 cases, 9 men and 2 women. It affords by far the largest number of causes in the table, for out of the total, 28 cases, it gives 39.2 per cent.

(a) H.C. This patient had always been a hard drinker. When 45 years of age he received a severe blow on the back of his head during a fight, and this was followed by a fit, and from that period he became a confirmed epileptic. It is not stated how long after blow fit supervened.

(b) S.H. He was well, mentally and physically, up to 54 years of age, when he fell down an embankment; this was followed by a fit and he afterwards had an average of 1 fit every fortnight.

(c) A.B. He was a bright and intelligent boy up to 11 years of age, when he fell from a window, severely injuring his head; this was followed by a fit, and this was the commencing period of his Epilepsy.

(1) Deffendorf - "Clinical Psychiatry" p.331. 1904.

(d) G.A. Said to have been well in every respect up to 11 years of age, when he had a fit, following a fall on his head; after this he became a confirmed epileptic.

(e) M.Thompson. At the age of 7 years he fell off a couch, which was said caused him to have his first fit, and has since then been subject to fits; previous to this fall he was a healthy boy, mentally and physically.

(f) B.B. She was born while her mother was standing over chamber, and birth being very precipitate, her head came in forcible contact with chamber. At the age of six months she began to have convulsions, which have continued at intervals since. At 7 years of age braincetomy was performed, a strip of bone being removed from each side of skull, but this was not followed by favourable results.

(g) U.H. When a lad, (age not stated), he received a violent kick on his head from a horse, this was followed by an epileptic fit, and he has since been subject to convulsions at intervals; previous to kick he had had no fits..

(h) W.U.M. He had a fall on his head when 2 years of age, which is said to have been the cause of his Epilepsy.

(i) J.S. was a bright and intelligent boy up to the age of 5 years, when his school-teacher struck him on the right side of his forehead with a ruler. The blow was succeeded by a fit, from which he did not recover for about one hour. Since receiving this blow, he has been subject to severe fits, and soon became very demented.

(j) E.J.B. was a bright child up to 5 years of age, when he had a severe fall on his forehead; soon after this (definite time not stated) Epilepsy set in and has continued.

(k) E.T. She was well in body and mind up to 21 years of age, when she received a blow on the head with a stick which was followed by a fit (not stated how long after) and has since been an epileptic, fits coming on at each menstrual period.

Insolation.

(1) Gowers says: "Exposure to the sun is frequently assigned as the cause of the first fit, but the relation is often doubtful, as sunstroke affords so ready an explanation of a convulsive seizure occurring in the hot sun."

There is no doubt but that Thermic Fever does cause Epilepsy in a few cases. In the table of exciting causes 2 cases, both males, are supposed to have acquired their Epilepsy in this manner.

(a) G.R.W. Never been abroad; was well up to age of 28, when he developed Epilepsy; the cause given, with no further particulars, being sunstroke.

(b) P.F. At age of 10, being previously healthy, he developed Epilepsy, supposed cause being sunstroke.

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(1) Gowers - "Epilepsy and other Chronic Convulsive Diseases" p.27. 1901. 2nd edition.

D. Acute Diseases.

Scarlet Fever.

(1) Gowers says recurring epileptic convulsions sometimes succeed acute specific diseases, and refers especially to the remarkable influence of Scarlet Fever in the causation of Epilepsy.

(2) Spratling says Scarlet Fever seems to lead to epileptiform convulsions at first, and later on to true Epilepsy, more often than any other infectious fever. In a series of 1323 cases, 814 men and 509 women, he found it to be the cause in 25 cases, 18 of which were men and 7 women, and states that, in his opinion, fully 2 per cent of all cases of Epilepsy are due to Scarlet Fever.

Scarlet Fever is the supposed cause of Epilepsy in 3 females in the annexed table of exciting causes, giving 10.7 per cent of the total 28 causes in the table.

(a) F.F.C. was a healthy child up to age of 8 years, when she had a severe attack of Scarlet Fever when Epilepsy set in and has since continued.

(b) A.L. At 13 years of age had an attack of Scarlet Fever, when she had her first fit, now being a confirmed epileptic - was well and had no fits previous to above attack of Scarlet Fever.

(c) M.W. was a bright and lively girl up to age of 10; went to school and was in fourth standard. At this age she had a severe attack of Scarlet Fever, when her first

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(1) Gowers - "Epilepsy and other Chronic Convulsive Diseases" pp.28-29. 1901. 2nd edition.

(2) Spratling - "Epilepsy and its Treatment" pp.82-85. 1904.

fit occurred, and she has since been an epileptic and mentally deficient.

Influenza.

Gowers says the cases of Epilepsy due to Influenza as a cause are by no means uncommon.

In the table on exciting causes there is one case, a male, where his Epilepsy was supposed to have been due to Influenza.

C.L. said to have been well, mentally and physically, until he had an attack of Influenza, which is said to have been the origin of his Epilepsy - he died here eventually in the Status Epilepticus.

E. Miscellaneous.

Chronic Alcoholism.

(1) Echeverria says: "I am convinced that Intemperance performs as great a part in effecting as in aggravating the epileptic paroxysm," and states that it is generally believed that Epilepsy is likely to manifest itself as the last accompaniment of Chronic Alcoholism. In his table of Causes of 284 cases he gives 25, 18 males and 7 females, where the cause of Epilepsy was due to Intemperance.

(2) Gowers says Chronic Alcoholism is an occasional cause of Epilepsy. Convulsions not infrequently result from

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(1) Echeverria - "Anatomo-Pathological and Clinical Notes on Epilepsy" pp.207, 209, 210. 1870.

(2) Gowers - "Epilepsy and other Chronic Convulsive Diseases" p.32. 1901. 2nd edition.

it, but usually in association with distinct symptoms of chronic Meningitis.

In the table on exciting causes there are 3 cases where Epilepsy was supposed to be due to Alcoholism, 2 males and 1 female. The cases are as follows:-

(a) I.M. At age of 22 he became very intemperate, but was well mentally and had no fits until he was 30 years of age, when he had his first epileptic seizure and became a confirmed epileptic.

(b) H.A.F. was well up to 33 years of age, when he began to drink heavily and continued to do so for 3 years when he had his first fit.

(c) M.T. has been a very heavy drinker all her life; at age of 23 she had her first fit and soon after became a confirmed epileptic.

Chorea.

(1)

Gowers says that it seems probable in cases in which the fits immediately succeed the chorea, and possibly in cases where a short interval has elapsed, that impaired nutrition of the motor centres during the chorea may have left a predisposition to further disturbance under the action of some other exciting cause.

(2)

Taylor says Epilepsy has also been observed as a sequel of chorea.

(1) Gowers - "Epilepsy and Chronic Convulsive Diseases" p. 195. 1901. 2nd edition.

(2) Taylor - "A Manual of the Practice of Medicine" p.374. 1901. 6th edition.

In the table of exciting causes Chorea was associated with Epilepsy in one woman. The few particulars which could be obtained were as follows:-

M.H. was a healthy, bright and intelligent girl up to the age of 5 years, when she had a bad attack of Chorea; a year later she began to have convulsions and has since been a confirmed epileptic. Menstruation began at the age of 16, but she has not been regular. Her father was an epileptic and drank heavily; her grandmother also drank.

In this case we have a severe attack of Chorea and a family history of Epilepsy and drink from a direct source, so this may have been a case where the Chorea acted as a predisposing cause, or may have impaired the nutrition of the motor centres in such a way as to pave the way for the onset of Epilepsy, as she already inherited a predisposition.

SYMPTOMS.

I. Prodroma.

Patients suffering from Epileptic Insanity frequently exhibit certain pronounced prodroma prior to the convulsive seizure - so much so that in all asylums there are a certain number of cases where it is possible for those in charge of the patient to say generally with definite accuracy "Oh! So-and-so is going to have a fit." To illustrate this the following cases may be taken:-

(a) A female patient, M.B., who is suffering from Dementia, during the interval between her fits, is quiet and gives

little trouble if left alone. Some hours, or it may be a day before she has a seizure, she is sullen, morose and irritable, wanders in an aimless manner about the ward, complaining of harmless remarks made by her fellow-patients as being insults to her, and is liable to become very violent if crossed or interfered with in any way. When fit occurs the atmosphere is cleared and she soon relapses into her former dull lethargic state. She has infrequent fits.

(b) H.W., a male patient, during the interval between his fits, which are infrequent, he is quiet and well behaved, working daily in the garden; mentally suffering from Dementia. Shortly before his fit, generally in the morning of the same day as it occurs, for as a rule they are of a nocturnal nature, he becomes irritable, sullen and self-absorbed, at times excited and destructive and tears up his clothes, often putting his fingers down his throat and causing vomiting. During this stage he generally asks if he may go to bed, and is always allowed to go. The fit occurs, as a rule, the same night, after which he soon recovers.

(c) P.P., a female patient, suffering from chronic mania. Between her fits she is, as a rule, fairly steady, and is a good worker in the ward. Generally, a day, or it may be 2 days, prior to a convulsion, she becomes very excited, runs about the ward, often shouting and raving. Has passing delusions and hallucinations of hearing, often fancying that her mother is just dying and she must go to her as she can hear her calling for her.

Mistakes the identity of people, claiming as relations those whom she sees daily, and at other times could name correctly; frequently becoming amorous, attempting to kiss them, &c. After she had had a fit she soon quietens down - has infrequent fits.

This mental unrest exhibited by patients previous to their convulsions, appears to me much more pronounced in those who have infrequent fits, and are quiet and tractable in the interval between their fits. Those patients who have frequent fits do not, as a rule, show such noticeable mental changes between each one, and in them the convulsion does not appear to clear the mental atmosphere, as it certainly does in those who are in the habit of having infrequent fits.

(1)
Gowers says, in rare instances the onset of the fit is preceded by some automic action, as running. A patient may always run a short distance and then fall in a fit. It is probably sometimes associated with the emotion of fear, of which rapid movement is the natural effect; the emotion may not be remembered, but it is sometimes suggested by a scream, which is not the mere laryngeal epileptic cry, but is distinctly that of fear; and he quotes a case where, in a boy, the cry was accompanied by an epigastric aura, and a sense of falling; he ran across the room, then screamed as he fell in the tonic spasm of the fit. These cases were termed "Epilepsia cursiva" by Bootius.

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(1) Gowers - "Epilepsy and other Convulsive Diseases" pp.43-44. 1901. 2nd edition.

In this Asylum there is a female patient who always runs across the ward, or if outside, runs for a short distance and then drops in a fit; if she is held to prevent her running, she clutches hold of her detainers and holds so firmly as to make it very difficult to loosen her grip. Before she starts to run her facial expression certainly denotes that of fear, but after she has had her fit she remembers nothing of it and says she has no sensation of fear prior to its onset, and does not know she runs before falling.

II. Aura.

(1) Gowers states that the word "aura" was first used by Pelops, the master of Galen, who was struck by the fact that the sensation with which many attacks began - commencing in the hand or foot - apparently ascends to the head. The sensation having been described to him by patients as a "cold vapour," he suggested that it might really be such passing up the vessels, then believed to contain air.

There are in this Asylum at present 208 patients suffering from Epileptic Insanity, 108 males and 100 females.

I have ascertained that out of the 208 patients there are 42, or 20.6 per cent, who experience an aura before fits, in the 108 males there are 21 cases or 19.4 per cent,

(1) Gowers - "Epilepsy and other Chronic Convulsive Diseases" p.46. 1901. 2nd edition.

and in the 100 females 22 cases or 22 per cent.

Aura may be classified as follows:-

Sensory

Motor

Psychic

Irregular

(a) Sensory.

Of the 21 male cases where an aura was experienced they were all of a sensory nature.

Aura of 108 males	cases.	p.c.of 108 M
Sensation of pain, something rising up in the stomach	5	4.3
" " " dragging or rising in throat	3	2.7
" " vertigo	4	3.3
" " trembling or pain in legs, arms, hands or feet	3	2.7
" " heat and weight in head	1	.92
" " heat in back	1	.92
" " pain, dimness & twitching in eyes & feeling of going blind	4	3.3

Of the 22 female cases who experienced an aura they were also all of a sensory nature.

Females

Aura	cases.	p.c. of 100 F.
Sensation of cold water running all over body	1	1
" " falling down	2	2
" " vertigo	10	10
" " of something rising in stomach - actual pain	4	4
" " pain in left side of thorax	1	1
" " pain, specks (black) in eyes	3	3

None of the males or females experienced any Motor, Psychic or Irregular Aura.

The most frequent aura present among the males was of an epigastric nature, in the females vertigo was the form most complained of. A large number of the patients being idiots, imbeciles and advanced dements, it is impossible to ascertain from them the feeling which they may experience.

III. The Epileptic Paroxysm.

Classically we recognise the 2 forms called, respectively, le grand mal and le petit mal.

(a) Grand Mal.

An aura may, or may not precede, and the patient, if standing, may without any warning fall suddenly down on his face, side or back. There may or may not be any epileptic cry.

Tonic stage. As soon as the patient falls, the face at first pale, soon becomes congested and cyanotic, on account of inhibited respiration, pupils rigidly dilated, eyes open or closed and the conjunctiva is insensitive. As a rule the head is rotated round to one side often as far as it will go; features are distorted; convulsions then immediately set in, the tonic convulsions being violent contraction of the muscles without alternate relaxation, they are more marked on the one side than on the other, the tongue is frequently thrust between the teeth and may be lacerated, the trunk is rigid and usually straight, the upper extremities, flexed at the elbow, are held close

to the trunk; the fists are clenched with the thumb forcibly adducted and hidden by the fingers which are bent over it into the palm; the lower extremity is also convulsed; the foot is arched and extremely tense, the leg being forcibly extended and twisted upon itself: it is at this stage that the spasm of the abdominal muscles expels the contents of the bladder, sometimes those of the rectum, and occasionally semen is ejected. The muscles of the thorax are likewise in a state of tetanic rigidity, and the respiratory movements are completely arrested.

Clonic stage. In this stage the limbs are alternately flexed and extended, the convulsions being more violent on the same side, as were the tonic convulsions. The sudden twitching of the limbs, body and face cause the jaws to grind together, the face to grimace horribly, and air to be noisily forced in and out of the chest, churning the saliva in the mouth and throat and forcing it through the teeth and lips in a bloody foam; the air entering the chest is, at first, insufficient to lessen the lividity, and the patient may seem to be at the point of death, but as the remission becomes greater and longer in duration more breath enters the chest and the lividity lessens, the muscular contractions become less and less powerful until they entirely cease and leave the patient in a stage of coma, where he lies inert as the convulsion left him with stertorious breathing and continued unconsciousness and profoundly comatosed; after a time, which varies from minutes to hours, he opens his eyes and regains consciousness, feeling confused and fatigued if the fit has

been at all severe, and often sore and strained.

During the violence of the tonic spasm the muscular contractions are so violent that the patient may receive bodily injuries.

(a) A patient, H.C., who had very severe fits, the tonic stage being particularly so, sustained a subcoracoid dislocation of his right shoulder, and in subsequent fits this was frequently repeated. He eventually died in a fit, apparently caused directly by the convulsion which was very severe, the writer being present at death; and at post mortem examination no other cause could be discovered.

(b) M.A.A., female patient, the subject of nocturnal Epilepsy, during a fit, which was always severe especially during the tonic stage, dislocated her lower jaw, the same thing happening in subsequent attacks. On one occasion she reduced the dislocation herself; the night-nurse, who had previously seen it dislocated on several occasions, said there was no doubt of its being dislocated. The patient said she had learnt, from having it so frequently reduced, how to do it. Since I put this patient on Borax her fits have been much reduced in number and severity, and since the onset of the administration of this drug she has not dislocated her jaw.

(b) Petit Mal.

This form of epileptic convulsion presents an endless variety. There may or may not be an aura present.

The patient may or may not fall, if he does fall he

is generally up again instantly, clonic movement and the subsequent coma not supervening.

The patient may be occupied when he suddenly stops, perhaps turns pale, and then goes on with what he was doing, or if in the middle of a sentence may stop and finish sentence after fit is passed.

There is a patient here who evidently at times experiences pain when he has his petit mal seizures as he often begins his fit by crying out "Oh dear! Oh dear!" and this he repeats time after time until the fit has passed off: he always calls out some word or words when he has a fit, and whatever word or words he begins his fit with he continues to repeat the same as long as he is in the seizure. Another patient, the subject of petit mal convulsions, frequently had a fit while playing cricket, at which game he was an expert; if batting he only stopped for a few seconds and then went on again as if nothing out of the way had happened - he usually became paler during his seizure.

The tongue may be bitten during a fit; this usually occurs during the clonic spasm but it may also be bitten during the tonic spasm, being caught between the teeth as the rigidity comes on.

Of the 208 epileptic patients at present in this Asylum, 108 males and 100 females, the following frequently bite their tongues during convulsion:-

	Males	Per cent.	Females	Per cent.
No. of cases	10	.92	37	37

(1) Spratling states that in 125 out of 500 men, and in 60 out of 325 women, there were one or more scars on tongue from being bitten during fits.

IV. Frequency of Fits.

Epileptic attacks may occur, in point of frequency, anywhere from one a year, or even less, to several hundreds a day.

The following cases illustrate patients having a large number of fits:-

A.C. in 6 years had attacks as follows:-

Year	Day	Night	Total
1900	1145	1281	2426
1901	969	1832	2801
1902	625	2079	2704
1903	787	1633	2420
1904	236	221	457
1905	127	244	371
		Total	11179

J.M. in 10 years had epileptic fits as follows:-

Year	Day	Night	Total
1896	128	350	478
1897	257	869	1126
1898	187	787	974
1899	272	948	1220
1900	298	1051	1349
1901	265	1092	1357

(1) Spratling - "Epilepsy and its Treatment" p.248.1904.

Year	Day	Night	Total (contd.)
1902	256	777	1033
1903	300	809	1109
1904	460	883	1303
1905	450	381	831
		Total	10822

These two cases show that it is possible for patients to have a large amount of fits yearly. In this Asylum there are 3 cases who have fits about once in every 3 or 4 years, and one male patient who has a fit generally every 6 months.

SPECIAL SYMPTOMS.

The influence of Epileptic fits on albumen and sugar in urine.

The occurrence of Albumenuria in Epilepsy is one of the most disputed points in clinical medicine.

(1) Brown Séquard says it has been denied and stated that the urine passed after an attack of Epilepsy sometimes contains albumen in patients free from kidney disease. In at least 5 cases he found that there was a notable amount of albumen in the first issue of urine after attacks, in which there had been violent spasmodic contractions of the abdominal and thoracic muscles; there was no disease of the kidneys or of the heart in these patients.

(2) Reynolds says: "I have never found sugar to be present, nor have I discovered albumen except in cases of Bright's Disease. Immediately after an attack both water and urea

(1) Brown Séquard - Dictionary of Medicine by Richard Quain p.602.vol.I. 1895. 2nd edition.

(2) Reynolds - "Epilepsy, its symptoms, treatment, and relation to other Chronic Convulsive Diseases" p.114.1861.

appear to be increased, and deposits of urates and uric acid have been discovered."

(1) Gowers says that the urinary secretion is rarely altered, and the frequency with which albumen is present has certainly been greatly exaggerated. Occasionally a trace of albumen is to be found, and it is said, in extremely rare cases, a trace of sugar; that in a large number of cases in which the urine was examined at the National Hospital for the Paralysed and Epileptic, it was very rarely the slightest trace of albumen could be detected, and in no instance sugar; and that Dr.Beevor examined for him the urine of 23 patients after 42 attacks, and in one instance only did he find a trace of albumen, and in this case after another month none could be found.

(2) Huppert has stated that the occurrence of albumen in urine after fits is almost invariable, and that hyaline casts can frequently be found.

(3) Sieveking found albumen permanently present in one, and temporarily in another out of 23 cases.

(4) George Johnson says albumen is often found in the urine after epileptic seizures when the kidneys are healthy.

(5) Saundby states that he examined the urine of 20 chronic epileptics. Altogether 27 examinations were made, and albumen was found on all but 5 occasions. The quantity

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(1) Gowers - "Epilepsy and other Chronic Convulsive Diseases" pp. 127 & 128. 1901. 2nd edition.
(2) Huppert - "Archis für Psychiatrie". 1877. page 189.
(3) Sieveking - "Epilepsy and Epileptiform seizures" p.117. 1861. 2nd edition.
(4) Johnson - "Pathology of granular kidney" British and Foreign Medico-chirurgical Review. 1877. p.293. vol.II.
(5) Saundby - "Albumenuria of Epilepsy" - Medical Times & Gazette. 1882. p.469. Vol.II.

varied from a copious precipitate to a faint trace, but, as a general rule, was present in traces only, and he fancies that the cause of albumen being absent in hospital cases may be that they get little exercise, and that there is no doubt that albumen is present in the urine after walking, though absent at other times; he also states that Max Huppert[1] and Otto[2] found albumen present in 22 out of 31 cases, both regarding it as a consequence of the general vascular disturbance due to the fit. That Bazin[3] found 27 examples of albumenuria in Epilepsy during his year of office at the Bicêtre, and that the albumen was found only immediately after the attack. That Emile Bovell[4] states that Dr.Allen Sturge found albumenuria only 3 times out of 25 cases examined immediately after their attacks, while Dr Bourneville at the Salpêtrière found albumen present in none out of 40 cases. That Mabille[5] observed the urine of 38 epileptics, using, as he says, the utmost care, but albumen was detected in only one case, and that this patient had all the signs of parenchymatous nephritis, and that Klendgen[6] made extensive observations upon 57 confirmed epileptics, and found that albumen could generally be found in the urine passed within 4 hours of an attack; the urine was drawn off by a catheter and albumen was absent in only about $\frac{1}{8}$ of the entire number. He thinks an increase of the albumen after the fits is due to the presence of semen.

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(1) Max Huppert - Virchows Archic Bd lix S 367.
(2) Otto - Berliner Klinische Nochenschrift. No.42. 1876.
(3) Bazin de l'Albuminurie Epileptique, Paris. 1868.
(4) Emile Bovell - Quelques accidents de l'Epilepsie, Paris.1877.
(5) Mabille - Annales Medico - Psychologique. November,1880.
(6) Klendgen Archie für Psychiatrie Bd XI. Heft 2.

I have examined 200 specimens of urine of 37 male and 10 female epileptics. These examinations were made from the first water passed after a fit for albumen and sugar. The tests for the presence of albumen being by heat, and nitric acid in the cold, for sugar Fehling's test was used, and a large number were examined microscopically.

My results were that, out of the 200 cases, albumen was present in 9 cases only, giving 4.5 per cent.

Out of these 9 cases in which albumen was discovered "Pus" was present on 7 occasions, and was probably the cause of the presence of the albumen, as in all cases it was present in fairly large amounts. On the other two occasions where albumen was present, the urine was obtained from one case - a boy - and the attendant in charge of this patient (as he generally passed his water during a fit) had orders to put his penis in a urine bottle as soon as fit commenced, and collect any urine passed; this boy always has very strong fits which are accompanied by powerful contractions of abdominal muscles.

In these two specimens the only cause I could discover to account for the presence of the albumen was that semen was discovered, microscopically, on both occasions. Klendgen (1) states that in his 57 cases, where he found albumen in $\frac{1}{3}$ of the number, that in his opinion it was due to the presence of semen, and I am strongly influenced to agree with him in this statement, but unless

(1) Klendgen - Archie für Psychiatrie. Bd XI. Heft 2.

he obtained his specimens during the fit, it is my opinion that probably there would bo no albumen if no semen was present in the urine, as I repeatedly examined this boy's urine after finding albumen and semen together, and on no other occasion did I find albumen or semen, and in the majority of the cases examined after I discovered the pus once, albumen and semen together, the urine was passed after the fit not during.

(1) Saundby states that the cause of albumen being found in 22 out of his 27 cases was that his patients had been taking regular exercise, but in asylums all epileptic patients who can, have regular daily exercise, when possible, and the most, or to be accurate, all except 2 of my cases had daily exercise when weather permitted, and I hold that this is proof sufficient to disprove his argument.

As regards the presence of sugar in urine after fits, most writers agree that it is of very rare occurrence.

(2) Goolden & Prout maintained that a saccharine condition of the urine ordinarily accompanied epileptic fits, but this they discovered was due to the saccharine diathesis which prevailed to a great extent at each cholera epidemic, when their observations were made.

(3) Gowers says that occasionally in extremely rare cases a trace of sugar is present.

(4) Echeverria says he found sugar in the urine after fits in one case. He states that Reynoso (5) regarded the phe-

(1) Saundby - "Albumenuria of Epilepsy" - Medical Times & Gazette. 1882. p.469. Vol.II.
(2) Goolden & Prout - Lancet. 1854. Vol.I p.656 & Vol.II.p.29.
(3) Gowers -"Epilepsy and other Convulsive Diseases". 1901. p.127. 2nd edition.
(4) Echeverria - On Epilepsy. 1870. p.286. (5) Reynoso - Annales Médico Psychologique. 1852.

nomenon as an ordinary sequel of Epilepsy, but of the 200 specimens I examined on no occasion did I find the faintest trace of sugar in the urine.

The Reaction of the Urine after fits.

(1) Echeverria made experiments on 4 male epileptics and found in all cases the reaction was acid.

Out of my 200 specimens of urine, I found

Acid 73.5 per cent

Alkaline 26.5 per cent

this shewing a marked tendency to acid reaction.

The specific gravity in urine passed after fits.

(2) Sieveking states that he found the specific gravity of the urine in the cases he tested more frequently ranged from 1020 to 1030 than below 1020.

In 26 specimens tested by Echeverria,(1) 20 were below 1020 and only 5 above.

Out of my 200 cases 50.5 per cent were of a specific gravity of 1020 or above 1020, and 44.5 per cent were below 1020.

Increase of Urea after fits.

(2) Sieveking says that he repeatedly found the urine of epileptics exhibit persistently so large a quantity of urea that on the addition of equal parts of nitric acid the whole of the liquid became solidified by conversion into nitrate of urea. He also states that Hunt said there was a deficiency of urea after epileptic attacks.

From my 200 specimens in only 5 per cent was there

(1) Echeverria - On Epilepsy. 1870. p.286.
(2) Sieveking - On Epilepsy and Epileptiform seizures. 1861. p.119. 2nd edition.

an appreciable amount of urea present, and on no occasion did they solidify on the addition of equal parts of nitric acid.

Increase of Phosphates after fits.

Sieveking says, frequently there is an increase of phosphates, and states that Hunt[2] found phosphates in such excess that he advocated the administration of nitro-muriatic acid.[1]

Out of my 200 cases 13.5 per cent showed an excess of phosphates. In one of my cases, whose urine I examined on 49 occasions, on each examination there was an excess of phosphates present.

of 200 specimens examined.	Reaction.	Specific gravity.	Albumen.	Sugar.	Urea.	Phosphates.
	Acid in 73.5 per cent.	1020 & above 1020 50.5 per cent.				
	Alkaline in 26.5 per ct.	Below 1020, 44.5 per cent.	4.5 p.c.	Nil.	5 p.c.	13.5 p.c.

EXCITANTS of ATTACKS.

The following have been quoted as acting as excitors of an attack in those who are already epileptics:- Fatigue, emotion, excessive joy, noises (especially sudden and loud), coitus, masturbation, menstruation, overloading of stomach, and constipation.

(1) Sieveking - On Epilepsy and Epileptiform seizures. 1861. p.119. 2nd edition.

(2) Hunt - Medical Times & Gazette. Vol XII. 1856. p.84.

In this Asylum there is a male patient who is subject to violent outbursts of acute Epileptic Mania. During these outbursts he masturbates freely and openly, and frequently has a fit while in this stage of excitement which usually lasts a day or more. This fit may be brought on by his indulgence in excessive masturbating, or it may simply be due to the state of wild excitement into which he works himself.

GENERAL COURSE of the DISEASE.

Epilepsy may first show its presence by the patient having very mild attacks of a Petit Mal nature, and these may become more and more frequent until they suddenly change into a severe convulsion.

Again, the onset of Epilepsy may be by severe fits without any preceding Petit Mal seizures.

Another mode of commencing may be by a single severe fit, and this being followed by no fits or sign of Epilepsy for months or even years, after which the interval gradually becomes less.

P R O G N O S I S.

The Prognosis of Epileptic Insanity is, by no means, satisfactory. During the 7 years I have been in this Asylum there has not been a patient discharged recovered, who was the subject of frequent fits; those who were were patients who had infrequent seizures.

Death from Epilepsy is by no means common, except in cases of Status Epilepticus, and if it does occur may be

the result of some accident or injury sustained during a fit, as falling from a height, falling into water and being drowned, falling into the fire and sustaining fatal injuries, choking during a meal, fall from carriage or bicycle, or being smothered in bed by face being buried in pillow.

The Influence of Epilepsy on Longevity.

The general concensus of opinion among writers is that epileptics, as a rule, do not live long lives.

(1) Spratling says, Epilepsy tends to shorten life; it does so in two ways, first by its effects alone in many cases, and secondly through its establishment so early in life that the majority of those who die through its effects do so before middle age is reached. In 150 cases in which death occurred the average age at death was 29 to 46 years.

(2) In Letchworth's, Dr Warnek says: "We find confirmed the old experience that epileptics in general do not attain an old age, and that a large majority perish, not from ordinary sickness, but from the consequences of Epilepsy. Of 68 patients who died in 1895 in the Bethel Colony, 5 were under 10 years of age, 13 under 20, 18 under 30 years, 15 under 40 years, 30 under 50 years, 1 under 60 years, and 3 under 70 years, showing that out of the 68 deaths 94.1 per cent died under 50 years of age."

(3) Echeverria shows in a table of deaths from nervous diseases of the 8th census, that there were 412 deaths

(1) Spratling - "Epilepsy and its treatment" p.307. 1904.
(2) Letchworth - "Care and treatment of Epileptics" p.230. 1900.
(3) Echeverria - On Epilepsy. p.151. 1870.

from Epilepsy, and that out of this total no less than 317 or 76.9 per cent occurred under 20 years of age.
(1)
Clonston says epileptics rarely live long lives.
(2)
Sieveking demonstrates in a table of deaths in London at different periods in 1853 that there were 61069 deaths, of these 385 or .63 per cent were due to Epilepsy, and of these 284 or 73.7 per cent occurred under 50 years of age.

Out of the 1057 cases of Epilepsy admitted into this Asylum up to August 31, 1905, I have been able to ascertain the age at death in 597 cases, and have arranged my cases in yearly tables, and also into decimal periods.

Females, Age at Death.

Yr.	No.of Deaths.	Yr.	No.of Deaths.	Yr.	No.of Deaths.	Yr.	No.of Deaths.	Yr.	No.of Deaths.
1	0	21	6	41	5	61	5	81	3
2	0	22	1	42	3	62	4	82	0
3	0	23	4	43	7	63	2	83	1
4	0	24	8	44	2	64	2	84	1
5	0	25	6	45	4	65	3	85	1
6	0	26	7	46	3	66	4	86	0
7	0	27	8	47	7	67	4	87	0
8	0	28	7	48	2	68	2	88	0
9	0	29	10	49	4	69	0	89	0
10	1	30	1	50	4	70	3	90	0
11	1	31	11	51	9	71	1		
12	0	32	7	52	4	72	0		
13	3	33	3	53	3	73	0		
14	1	34	12	54	1	74	2		
15	4	35	4	55	1	75	2		
16	1	36	12	56	1	76	2		
17	2	37	6	57	3	77	2		
18	2	38	2	58	4	78	1		
19	2	39	3	59	0	79	1		
20	3	40	3	60	5	80	0		

(1)
Clonston - "Clinical Lectures on Mental Diseases" p.442. 6th edition. 1904.
(2)
Sieveking -"Epilepsy and Epileptiform seizures". 1861. p.83. 2nd edition.

Males, Age at Death.

Yr.	No.of Deaths.	Yr.	No.of Deaths.	Yr.	No.of Deaths.	Yr.	No.of Deaths.	Yr.	No.of Deaths.
1	0	21	5	41	9	61	4	81	0
2	0	22	7	42	4	62	4	82	0
3	0	23	6	43	9	63	1	83	0
4	0	24	9	44	4	64	4	84	0
5	0	25	13	45	6	65	3	85	0
6	1	26	9	46	7	66	2	86	0
7	0	27	7	47	9	67	3	87	0
8	1	28	13	48	6	68	2	88	0
9	1	29	4	49	8	69	0	89	0
10	3	30	8	50	3	70	1	90	0
11	1	31	7	51	3	71	0		
12	2	32	8	52	3	72	0		
13	0	33	6	53	2	73	2		
14	2	34	9	54	2	74	1		
15	6	35	9	55	2	75	0		
16	5	36	10	56	5	76	1		
17	2	37	9	57	3	77	2		
18	11	38	11	58	5	78	0		
19	5	39	10	59	2	79	1		
20	6	40	6	60	3	80	0		

By changing the yearly table into decimal periods we have as follows:-

Females.

	No.of Deaths.			
Under 10 years	0	or	0 p.c.of the total No.of 259 females.	
10 to 19 "	17	"	6.5	" "
20 " 29 "	60	"	23.1	" "
30 " 39 "	61	"	23.5	" "
40 " 49 "	40	"	15.4	" "
50 " 59 "	30	"	11.5	" "
60 " 69 "	31	"	11.9	" "
70 " 79 "	14	"	5.4	" "
80 " 89 "	6	"	2.3	" "

Males.

	No.of Deaths.		
Under 10 years	3	or 8 p.c. of the total number of 338 males.	
10 to 19 "	37	" 1.09	" "
20 " 29 "	79	" 23.3	" "
30 " 39 "	87	" 25.7	" "
40 " 49 "	68	" 20.1	" "
50 " 59 "	30	" 8.8	" "
60 " 69 "	26	" 7.6	" "
70 " 79 "	8	" 2.3	" "
80 " 89 "	0	" 0	" "

If we now take the decimal periods of both Males and Females we have as follows:-

Males and Females.

	No.of Deaths.		
Under 10 years	3	or .502 p.c.of total number of 597 M. & F.	
10 to 19 "	54	" 9.04	" "
20 " 29 "	139	" 23.2	" "
30 " 39 "	148	" 24.7	" "
40 " 49 "	108	" 18.08	" "
50 " 59 "	60	" 10.05	" "
60 " 69 "	57	" 9.5	" "
70 " 79 "	22	" 3.6	" "
80 " 89 "	6	" 1.005	" "

The yearly female table shows that out of 259 deaths only 17 or 6.5 per cent occurred below the age of 20 years, after this the numbers keep comparatively high up to 51 years when there is a rapid decline to the 85th year.

The yearly male table demonstrates practically the same facts, for out of 338 deaths only 40 or 11.8 per cent occurred under 20 years of age, the number keeping up until the 50th year when they gradually decline.

In the decimal tables we find that under the age of 50 out of 259 females there were 178 or 68.7 per cent deaths
" " 338 males " " 274 or 81.06 " " "
" " 597 Males & Females " 452 or 75.7 " " "

In selecting patients suffering from Epileptic Insanity in an Asylum for special treatment with drugs the difficulty at once presents itself as to which would be the most suitable cases for this purpose, as in a large majority of Insane Epileptics it would be quite impossible to expect them to take drugs regularly for any length of time.

I accordingly selected patients who I thought would take the prescribed drug regularly, and only those who were in the habit of having frequent fits.

They were all chronic epileptics and had been all treated, the majority for years, with Bromide of Potassium.

In selected patients the following procedure was adopted:-

1. All medicines were stopped for one month.
2. From the beginning of that month and onwards, the temperature was taken night and morning, and pulse rate counted at same time.
3. The bodily weight was ascertained twice weekly.
4. Each fit and the time when it occurred noted.

THE TREATMENT OF EPILEPTIC INSANITY BY BORAX.

The use of Borax or Borate of Soda was first suggested by Gowers[1] in 1879, who has since remained a believer in its efficacy.

Gowers[2] says in inveterate cases of Epilepsy in which Bromide has no effect, Borax may sometimes be given with considerable benefit, and recommends it in doses of 15 grains to half a drachm, three times a day. He says it is not well to begin with a larger dose than 15 grains, and that it has been pushed to 120 grains a day for a time and afterwards reduced. He states that one observer found that attacks were lessened in two-thirds of cases, and were arrested in a tenth.

(3) Spratling says, next to Bromides many believe that Borax enjoys favourable distinction as an anti-epileptic remedy, and that it was tried at the Craig Colony in 10 carefully selected cases - all of an obstinate character. The initial dose was 10 grains three times daily, increased later to 15 grains; in three cases only was there a diminution in the number of seizures. Upon the gastro-intestinal tract its evil effects were noted in nearly all cases at one time or another; its cumulative tendency gave rise to persistent attacks of boils which led to its abandonment.

Mairet[4] sums up his conclusions concerning the use of Borax in Epilepsy as follows:-

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(1) Gowers - "Goulstonian Lectures" Lancet. 1879. Vol.I.
(2) Gowers - "Epilepsy and other Convulsive Diseases" 1901. p.286. 2nd edition.
(3) Spratling - "Epilepsy and its Treatment" pp.375 & 376.1904.
(4) Mairet - "Le Progrès Médical" No.41. October 10,1901.

i. Borate of Soda may have real utility in the treatment of Epileptic attacks, which it may diminish or even suppress for many months.

ii. Borate of Soda succeeds better in symptomatic epilepsies than does the Bromide of Potassium.

(1) Fulson says, when Bromide was not well borne, or had been taken for a long time without effect, Borax was very satisfactory, and he quotes the details of 2 patients in both of whom some symptoms of Bromism made it impossible to continue the form of treatment, fits became frequent and severe when the Bromide treatment was discontinued, and Borax was commenced, at first in 10 gr., later in 20 grain doses three times a day; in one case 78 days were allowed to elapse before the new treatment was commenced, and it was continued for three years. During the last 12 months only 2 fits had occurred, caused on each occasion by "Indigestion." The other patient had only 2 fits in 18 months. In both a scaly eruption appeared, but disappeared when arsenic was administered, and one patient was troubled by vomiting at the commencement of the treatment.

(2) Féré & Lassey quote 2 cases in which eczematous eruption had been provoked by Borax. The patients were epileptics and were taking from 35 to 45 grains three times a day, and the eruption faded when the drug was discontinued; they considered the eruption was an ordinary eczema provoked by Borax in persons who were predisposed, as both of the patients had rhorrhoea of the scalp, and

(1) Fulson - Boston Medical & Surgical Journal, 1886. p.147.
(2) Féré & Lassey - Nouvelle Iconograhpie de la Salpêtrière for November & December, 1889.

one had, in addition, a few patches of old eczema.

(1) Stewart, after treating 6 cases of Epilepsy, 3 being nocturnal in nature, came to the conclusion that Borax exercised a peculiar influence over nocturnal Epilepsy, and that it is in cases where fits are entirely of that kind that the greatest good is expected.

(2) Stewart Lockie states that he treated a case with Borax after Bromide failed in the case of a boy who had fits on an average weekly, and who, when he had taken Borax for one month, began to improve, and for 6 months had no fits. No skin eruption was noted, vomiting occasionally took place if the medicine was taken before meals, and at one period he complained of sleeplessness.

The treatment of Epileptic Insanity by Borax.

I have treated 6 cases of Epileptic Insanity with Borax.

(1) Arthur C., admitted February 7, 1900, aged 25 years. No family history of Epilepsy, Insanity, Phthisis, or Intemperance could be ascertained.

Epilepsy began at the age of 12 years, and the frequency of the fits prevented his following any trade.

Mental State - on admission was suffering from Dementia, having a dull, vacant expression, and being unable to converse, lost and confused, having little idea of time or place; was very violent, being for 3 years after his admission one of the most dangerous epileptic patients in the Asylum, frequently fighting with his fellow-patients and making numerous violent and unprovoked assaults upon

(1) Stewart - Lancet 1890. Vol.I. p.909.
(2) Stewart Lockie - Brit.Med.Journ.1882. Vol.II.p.789.

the attendants which ended in severe struggles.

One peculiar characteristic of this patient was the manner in which he fell during his fits; in the most of these he fell flat on his back striking the occipital region of his head on the floor or wherever he fell; and so frequently did he fall on this part of his head that not only did he have numerous cuts in this region but had, on several occasions, a diffuse cellulitis of the occipital region lasting for months. Pads of all kinds were tried but these he refused to wear.

(1) Mercier says: "I have never known an epileptic to fall backward in a fit, and I believe they never do so unless there is some contributary cause to give this exceptional direction to the fall," and he states that in the 44th report of the Commissioners in Lunacy there was recorded a death of a patient in the Joint Counties Asylum from a fall "on the back of the head" while descending a staircase.

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(1) Mercier - Lunatic Asylums, their organisation & management, p.145. 1894.

The effect of Borax on the number of the patient's fits.

The table giving his fits since his admission shews the Day and Night fits per year as follows:-

	Day	Night	Total
in 1900 (from February 7th)	1145	1281	2426
" 1901	969	1832	2801
" 1902	625	2079	2704
" 1903	787	1633	2420
" 1904	236	221	457
" 1905	127	244	371

From his admission in 1900, to December 24, 1903, when he was taking Potassium Bromide gr.xv three times daily, he had a yearly total of over 2000 fits. When Borax treatment was commenced on January 24, 1904, in gr.x doses three times daily, the number of fits at once began to diminish, but it was not until July, 1904, when taking Borax in gr xx doses three times a day, that this diminution became most pronounced; during that month he only had 20 day and no night fits, next month (August) taking same doses he had none, and only 7 during the night in September, from this time onward the number of fits kept low until March 24, 1905, when Potassium Bromide in gr xv doses three times daily was substituted for Borax, when his fits at once increased in number, and while being treated with this drug up to May 24, 1905, he had a large number of fits. At this date he was again put on Borax gr xx three times daily, and for following 8 months he only had 5 day and 31 night fits, dose of Borax being increased to xxv. 40 & 50 gr daily, and during the next month

(June, 1905) he only had one day and 3 night fits, none during July and only one during night in August, and up to January 24, 1906, while taking Borax in increasing doses up to gr 50 three times daily he had very few fits. During the year 1904, under Borax treatment, he had 457 fits, being 1963 less than when on Bromide of Potassium, and the following year, 1905, he had 371 fits.

This shews what a marked advantage Borax held over Bromide of Potassium in controlling the number of this patient's fits, that at once on the withdrawal of its administration his fits increased markedly in number, and on its being re-administered fits at once almost ceased.

In August, 1900, he had a severe attack of double Pneumonia, which almost proved fatal, and during the time he was in bed he had no fits and, as seen from table, had only 5 day and 14 night fits during the month after getting up.

(1) Clonston quotes a case where an epileptic patient had no fits for 9 months, during which time he was recovering from a severe wound caused by a burn, and states that he has frequently seen that during a serious illness there is a cessation of the fits.

From his admission in February, 1900, to December 24, 1903, he was taking Bromide of Potassium gr xv three times a day, frequently it became necessary to administer Sulphonal and other sedatives, when he became acutely excited.

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(1) Clonston - "Clinical Lectures on Medical Diseases" p.447. 6th edition. 1904.

On December 24, 1903, all medicines were stopped until January 24, 1905, when the treatment of Borax was commenced.

From December 24, 1903, and onwards, his temperature was taken morning and evening and pulse rate counted at same time; his bodily weight was ascertained twice weekly, and all fits recorded.

The day fits being counted during the hours from 6 a.m. to 8 p.m.

The night fits counted during the hours from 8 p.m. to 6 a.m.

Dose of Borax given in this case.

From Dec.24,1903	to Jan. 24,1904	No medicines were administered		
" Jan.24,1904	" Feb.24, "	Borax	10 grains	3 times daily after food
" Feb.24, "	"March 24, "	"	15	"
" March 24, "	" Nov. 24, "	"	20	"
" Nov. 24, "	" March 24,1905	"	30	"
" March 24,1905	" May 24, "	Potassium Bromide	15	"
" May 24, "	" Sept. 24, "	Borax	20	"
" Sept. 24, "	" Oct. 24, "	"	30	"
" Oct. 24, "	" Dec. 24, "	"	40	"
" Dec. 24, "	" Jan. 24,1906	"	50	"

After getting up to 20 grains of Borax on March 24, 1904, he was kept on this dose for 8 months, as I wished to give the drug a fair trial in an ordinary dose. On November 24, 1904, the dose was increased to 30 grains, which dose was administered until March 24, 1905, when the Borax was withdrawn and Bromide of Potassium substituted, in order to see the effect which, proving most unsatisfactory, I again, on May 24, 1905, administered Borax in 20 grain doses three times daily.

The effect of Borax on his Temperature.

The following table shews his average morning and evening temperatures taken during the administration of Borax and also during the two months when Potassium Bromide was substituted for Borax.

Amount of Borax taken per day		Average Temperature. M.	Average Temperature. N.
	Average Temperatures during month when no medicine was administered	96.4	95.8
30 grains		96.3	96.3
45 "		96.7	96.8
60 "		96.3	96.3
60 "		95.9	96
60 "		96	96.5
60 "		96.3	96.9
60 "		96.3	96.6
60 "		96.5	96.8
60 "		96.5	96.7
60 "		96.5	96.6
90 "		96.3	96.8
90 "		95.8	95.8
90 "		96.2	96.2
90 "		96.1	96.5
Pot. Bromide in 45 grains		95.9	96.3
45 "		96.3	96.5
Borax in 60 grains		95.8	96.9
60 "		95.7	96.9
60 "		96.1	97.1
60 "		96.5	96.6
60 "		95.8	96.4
90 "		96.4	96.4
120 "		96.2	94.7
150 "		95.9	97.6

The effect of Borax on his Temperature.

(1) Clonston states that the average temperature of epileptics is 97.48 in the morning and 97.38 in the evening.

In the case of Arthur C., during the month when no medicines were administered, his average morning temperature was 96.4 and in the evening 95.8.

When having 30 grain doses daily of Borax his average morning temperature was 96.3 and evening 96.3.

When having 45 grains daily his average temperature in the morning was 96.7 and in the evening 96.8.

During the 8 months when having Borax, 60 grains daily, his average morning temperature was 97.1 and evening 96.5.

While having 90 grains of Borax daily for next 4 months his average morning temperature was 96.1 and evening 96.3.

During the next 2 months when Potassium of Bromide was substituted for Borax, in grains 45 daily, his average morning temperature was 96.1 and evening 96.4.

During the following 5 months he was given Borax, 60 grains daily, when his average morning temperature was 95.9 and evening 96.7.

The next month he was having Borax, 90 grains daily, when his average morning temperature was 96.4 and evening 96.4.

This dose of Borax was raised to 120 grains for next month when his average morning temperature was 96.2 and evening 94.7, and lastly the dose was raised to 150 for last month when his average morning temperature was 95.9 and evening 97.6.

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(1) Clonston - Journal of Mental Science. April, 1868.

As will be seen from annexed table this patient's average temperature did not rise above 97.6, that being the highest average temperature recorded while he was having Borax in varying doses from January 24, 1904, to January 24, 1906, except the 2 months when Bromide of Potassium was substituted.

During the 22 months this patient was taking Borax in varying doses from 30 to 150 grains, his average morning temperature was 96.1 and his average evening temperature was 96.6.

Effect of Borax on his bodily weight.

The following table shews his weight per month and doses of Borax taken, also his weight during the two months when Bromide Potassium was substituted for Borax.

Amount of Borax taken per day.	Weight during month when no medicine was taken	Weight per month in lbs.
30 grains		1301¾
45 "		1368
60 "		1264
60 "		1366
60 "		1355¾
60 "		1381
60 "		1289
60 "		1335¼
60 "		1324
60 "		1345½
60 "		1363¾
90 "		1361
90 "		1367
90 "		1381
90 "		1399½
Pot.Bromide 45 grains		1393
45 "		1397½
Borax 60 "		1393
60 "		1368
60 "		1357
60 "		1278¾
60 "		1339
90 "		1340½
120 "		1328½
150 "		1310

Effect of Borax on his bodily weight.

The table of Bodily Weight shews that during the month he was taking 30 grains daily he gained 67¾ lbs on the previous month when taking no medicine. When taking 45 grains a day he lost 104 lbs in the month, but when the dose was raised to 60 grains daily he gained 102 lbs in the first month and this increase in weight was fairly well maintained until the fourth month when he was still taking 60 grains a day, when his weight fell 92 lbs. but on the same dose he gained the following month; after this his weight kept gradually increasing, the highest record being during the third month when he was taking 90 grains of Borax per day, and this weight was fairly well maintained during the two months when Bromide of Potassium was substituted for Borax; this was contrary to my expectation as he was having numerous and severe fits while taking the Bromide of Potassium, and I fully expected a decided fall in his bodily weight.

On being again put on Borax, in 60 grain doses daily, during the first month his weight did not alter much but he lost 25 lbs in the second month, having the same dose; the next month there was a trifling loss, but during the fourth month, on 60 grains daily, he lost 79 lbs, the next month he gained 61 lbs; the following month the dose being raised to 90 grains daily, his weight practically was the same, on being further raised to 120 grains daily he lost 12 lbs that month, and on being finally raised to 150 he lost 18 lbs during the time he was taking that dose.

This table shews that as far as his bodily weight is concerned the most comfortable dose was about 60 grains daily, during this dose his weight kept fairly level, and when it was raised over 90 grains daily his weight at once began to fall and kept on falling when 150 grains daily were administered.

The effect of Borax on his Pulse Rate.

The following table shews his average Pulse Rate counted night and morning and doses of Borax taken, also doses of Bromide of Potassium when substituted for Borax.

Amount of Borax taken per day.		Average Pulse Rate. Morning	Night.
	Pulse rate during month when no medicine was taken	85	85
		85	85
30 grains		80	80
45 "		86	86
60 "		82	86
60 "		78	83
60 "		75	81
60 "		74	70
60 "		76	78
60 "		76	77
60 "		77	79
90 "		82	81
90 "		82	83
90 "		79	79
90 "		73	76
Amt.of Pot. Brom.per day.			
45 grains		80	81
45 "		84	84
Amt.of Borax per day			
60 grains		78	83
60 "		76	85
60 "		77	85
60 "		79	80
60 "		74	81
90 "		77	79
120 "		93	74
150 "		80	78

The effect of Borax on his Pulse Rate.

His average Pulse Rate during the month when taking no medicines was 85 in the morning and 85 in the evening.

When taking 30 grains of Borax daily his average pulse rate was in the morning 85 and evening 85.

During the 8 months when he was taking 60 grains daily of Borax his average pulse rate was 86 in the morning and 81 at night.

During the 4 months when dose of Borax was increased to 90 grains daily his average pulse rate was 79 in the morning and 79 in evening.

The next two months Bromide of Potassium was substituted for Borax, in 45 grain doses daily, when his average pulse rate was in the morning 82 and in evening 87.

During the next 5 months, when he was again taking Borax in 60 grain doses daily, his average pulse rate was 76 in the morning and 82 in the evening; the next month the dose of Borax was raised to 90 grains daily when his average pulse rate was 77 in morning and 79 in the evening. It was again raised to 120 grains the following month when his average pulse rate was 93 in the morning and 74 in the evening, and the last month he was given Borax, 150 grains daily, when his average pulse rate was 80 in the morning and 78 in the evening.

During the 22 months when he was taking Borax in varying doses from 30 to 150 grains his average pulse rate in the morning was 79 and in the evening his average pulse rate was 80.

The effect of Borax on his Mental State between fits.

While taking Potassium Bromide with more potent sedatives, when necessary, from his admission in 1900 until the commencement of his treatment with Borax in January 1904, his mental condition could not have been worse, he was dull, morose, irritable, prone to take offence at the simplest remark, and very dangerous, making sudden and unprovoked assaults on his fellow-patients and attendants which always ended in severe struggles.

Since January, 1904, he has been a changed man, having become quiet and peaceful if left alone, talkative and cheerful, but childish and easily amused; previously he was unable to attend Church or any of the amusements, now he is a regular attendant. He is also, and has been since taking Borax, a good ward-worker and a willing helper - all this change has been brought about by Borax which in this case has acted like a charm.

The effect of Borax on the character of his fits.

From his admission in 1900 up to 1904, when he began to take Borax, he had very severe fits, always falling generally directly backwards and frequently cutting his head and bruising himself; for months he had cellulitis over occipital region caused by constantly falling on this region in his fits.

Since January, 1904, the character of his fits has altered, during the day he generally has very slight fits of Petit Mal nature, rarely falling, and since this date has not injured himself in any way during his fits. His night fits under Borax are still strong, and probably if

he had them during the day as strong he would fall; but even in them the tonic stage is shortened, and the succeeding coma is not so prolonged.

The effect of Borax on his General Health.

During the two years I have treated this patient with Borax in varying doses he has been in good health, slept well and taken his food, the only complication which may have been caused by the Borax was that he had an attack of Colitis shortly after the treatment was commenced, it was a mild attack and it was not necessary to discontinue the drug for many days.

While taking the drug in 120 and 150 grain doses daily he became dull and depressed and unable to work, wandered aimlessly about and was in a lost state, was peevish and inclined to be irritable, constantly complaining about trivial things, but when the dose was reduced to half for a couple of days he soon became brighter and I then again raised the dose, this happened more frequently when he was taking doses of 150 grains a day. He had no symptoms of gastric trouble, and the drug seemed to cause him no bodily inconvenience.

Case 2.

Simon M. Admitted February 20, 1896, aged 38. His mental condition has been, from his admission, one of Dementia. He has a dull, vacant expression, lost and confused, having little idea of time or place, and does not know the value of money, is liable to frequent out-

bursts of sullen irritability with quarrelsome, aggressive and violent tendencies.

No family history of Epilepsy, Insanity, Phthisis, or Intemperance could be ascertained, and I was unable to find out how long he had suffered from Epilepsy.

Doses of Borax followed by Potassium Bromide given in this Case.

From Dec. 24,1903 to Jan. 24,1904 No medicines were given.

"	Jan. 24,1904	"	Feb. 24,	" Borax 10 grains	three times daily.
"	Feb. 24,	"	March 24,	" " 15	"
"	March 24,	"	Nov. 24,	" " 20	"
"	Nov. 24,	"	March 24,1905	" 30	"
"	March 24,1905	"	Aug. 24,	" Pot.Brom.15	"
"	Aug. 24,	"	Sept. 24,	" 20	"
"	Sept. 24,	"	Oct. 24,	" 30	"
"	Oct. 24,	"	Nov. 24,	" 40	"
"	Nov. 24,	"	Dec. 24,	" 45	"
"	Dec. 24,	"	Jan. 24,1906	50	"

From his admission until December 24, 1903, he was taking Potassium Bromide, grains 45 daily.

After raising the dose of Borax to 90 grains daily, I withdrew the drug and substituted Potassium Bromide, as I was anxious to test the influence of this drug following the Borax.

Effect of Borax followed by Potassium Bromide on his fits.

The table, giving his fits from his admission, shews the day and night fits per year as follows:-

	Day	Night	Total
in 1896 (from February 20th)	14	722	727
" 1897	72	587	659
" 1898	13	444	457
" 1899	18	559	577
" 1900	22	645	667
" 1901	14	685	699
" 1902	28	790	818
" 1903	20	629	649
" 1904	5	171	176
" 1905	21	442	463

From his admission in 1896 to December 24, 1903, when he was taking Potassium Bromide grains 45 daily, he had an average of 655 fits per year.

During the year 1904, when taking Borax, his fits diminished in number to 176.

During the second month when taking Borax xv grains three times daily the first marked reduction was noticeable and he only had one day fit and 18 night, after this the day fits practically ceased as he only had 5 during the year 1904. The night fits were greatly reduced also, but to a much less extent. When Potassium Bromide was substituted for Borax on March 24, 1905, his fits began to increase in number, and it was not until he was taking large doses of Potassium Bromide that they began again to diminish in number, shewing that Bromide of Potassium

had not nearly such a decided control over his fits as Borax.

The effect of Borax & Potassium Bromide on his bodily weight.

The following table shews his weight per month in lbs. and doses of Borax and Potassium Bromide taken.

Amount of Borax taken per day	Weight per month in lbs.
Weight during month when no medicine was taken.	1149½
30 grains	1128
45 "	1118
60 "	1099½
60 "	1099½
60 "	1089½
60 "	1100
60 "	1109½
60 "	1181
60 "	1068½
60 "	1073
90 "	1089
90 "	1095½
90 "	1074
90 "	1072
Pot.Brom.daily	
45 grains	1077
45 "	1069½
45 "	1112½
45 "	1117
45 "	1105
60 "	1115
90 "	1105
120 "	1076½
135 "	1096
150 "	1005½

During the month when he was taking no medicines his bodily weight was 1149½ lbs, the next month when taking Borax in 10 grain doses three times daily he lost 21½ lbs, and on 45 grains daily of Borax lost 10 lbs the next month.

During the following 8 months when taking 60 grains of Borax daily, his average weight was 1102 lbs; his weight kept fairly even during the first 6 months at this dose when it fell 113 lbs during the 7th month, and rose slightly

during the 8th month.

In the next 4 months he was given Borax 90 grains daily with little alteration in his weight.

The next 5 months, taking Bromide of Potassium in 15 grain doses three times daily, his weight rose after the 2nd month and kept up fairly well.

The next month the dose of Potassium Bromide was raised to 60 grains daily with increasing weight, but when it was again raised to 90 grains daily his weight fell again; it increased slightly during the following 2 months, and fell considerably the last month when having Bromide of Potassium 150 grains daily, losing 91 lbs on the preceding month.

The highest weight record was when he was taking no medicines, and the lowest when he was having the largest doses of Bromide of Potassium. His weight was more evenly maintained when he was taking doses of 45 grains daily of Bromide of Potassium than during the months when Borax was administered.

Effect of Borax and Potassium Bromide on his Pulse Rate.

This table shews his average morning and evening Pulse Rate taken during the administration of Borax followed by Potassium Bromide.

Amount of Borax taken per day.	Average Pulse Rate when taking no medicine	Average Pulse Rate. M	N
		87	85
30 grains		81	82
45 "		82	80
60 "		79	78
60 "		78	78
60 "		72	74
60 "		72	75
60 "		75	76
60 "		78	79
60 "		96	78
60 "		78	77
90 "		75	77
90 "		77	78
90 "		77	75
90 "		71	70
Pot.Brom.daily			
45 grains		77	72
45 "		75	75
45 "		76	78
45 "		73	73
45 "		76	74
60 "		82	75
90 "		78	77
120 "		75	75
135 "		73	74
150 "		79	79

Effect of Borax & Potassium Bromide on his Pulse Rate.

During the month when he was taking no medicine his average pulse rate in the morning was 87 and in the evening 85.

When taking Borax, 45 grains daily, the next month, there was a slight fall, especially in his morning pulse rate which was 81 and in the evening 82.

During the next 8 months, when Borax in 20 grain doses three times a day were given, his average morning pulse rate was 79 and in the evening 76, showing an evening fall in the average pulse rate.

When taking Borax, 90 grains daily the following 4

months, there was little change, his average morning pulse rate being 75 and the evening 75.

The administration of Borax was now stopped and Bromide of Potassium was given in 45 grains daily for the next 5 months, when his average morning pulse rate was 75 and evening 74.

The next month there was a rise in his morning pulse rate when taking Potassium Bromide, 60 grains daily, being 82, while his average evening pulse rate was 75.

The following month it kept up fairly well when taking 90 grains of Potassium Bromide daily, when his average morning pulse rate was 78 and evening 77.

There was a slight fall next month, when dose of Bromide of Potassium was increased to 120 grains daily, his morning pulse being 75 and evening 75.

Next month, with dose of 135 grains daily of Bromide of Potassium his pulse rate still fell, the average morning pulse rate being 73 and evening 74.

During the last month when taking 150 grains of Bromide of Potassium daily, his pulse rate rose to 79 in morning and 79 in evening.

During the 14 months this patient was taking Borax in doses varying from 30 to 90 grains daily, his average morning pulse rate was 77 and his average evening pulse rate was 76, the highest average pulse rate recorded for one month was 96.

During the 10 months he was taking Potassium Bromide in varying doses from 45 to 150 grains daily, his average pulse rate in the morning was 76 and his average evening

pulse rate was 75.

The effect of Borax and Potassium Bromide on his Temperature.

The following table shews his average temperature taken morning and evening during the administration of Borax followed by Potassium Bromide.

Amount of Borax per day.	Average temperature during month when no medicine taken	Average Temperature. M	N
30 grains		96.5	96.4
45 "		96.2	96.2
60 "		96.3	96.9
60 "		96.9	97.2
60 "		95.5	96.9
60 "		96.5	96.9
60 "		96.6	97.6
60 "		96.7	97.3
60 "		96.8	97.2
60 "		96.7	97
60 "		96.7	97.1
90 "		96.4	97
90 "		96.5	96.8
90 "		96.5	97.2
90 "		96.7	97.2
Pot.Brom.daily 45 grains		96.6	97
45 "		96.3	97.1
45 "		96.2	97.1
45 "		96.6	97.3
45 "		96.6	97.1
60 "		96.8	96.8
90 "		96.1	96.9
120 "		96.4	97
135 "		96.2	97
150 "		96.2	97

During the month when no medicine was administered his average morning temperature was 96.5 and in the evening 96.2.

The next month, when taking Borax, 30 grains daily, his average morning temperature was 96.2 and evening 96.2.

When taking Borax, 45 grains daily, during the next

month, his average morning temperature was 96.3 and 96.9 in the evening.

During the next 8 months, when taking Borax, 60 grains daily, his average morning temperature was 96.5, practically the same as the previous months, his evening temperature was 97.1 being slightly higher than the previous months.

The next 4 months the dose of Borax was raised to 90 grains daily, when his average morning temperature recorded the same as when he was taking Borax, 60 daily, 96.5, and there was a very slight rise in the average evening temperature which was 97.5.

Bromide of Potassium was then given in place of Borax, in 45 grains daily, for the next 5 months, when his average temperatures were practically unchanged, his morning being 96.4 and evening 97.1.

The dose of Bromide of Potassium was then raised during the next month to 60 grains daily, when there was a slight fall in his evening temperature, it being 96.8, and in morning 96.8.

During the next month, when taking Potassium Bromide, 90 grains daily, his average morning temperature fell .7, being 96.1, and his evening being practically the same, 96.9.

When taking 120 grains daily of Potassium Bromide during the next month, the average morning temperature was 96.4, rising .3, and his evening temperature 97.

During the next month, while taking Potassium Bromide, 135 grains daily, his average morning temperature was 96.2

and evening 97.

And during the last month, when taking Bromide of Potassium, 150 grains daily, his average temperature night and morning was the same as the previous month.

During the 14 months he was taking Borax, in varying doses from 30 to 90 grains daily, his average morning temperature was 96.5, and his average evening temperature was 96.5.

The highest average temperature recorded for one month was 97.6, being an evening temperature.

During the 10 months when taking Potassium Bromide in varying doses from 45 to 150 grains daily, his average temperature in the morning was 96.4, and his average temperature in the evening was 97.3.

The effect of Borax & Bromide of Potassium on the Character of his fits.

From his admission in 1896 up to 1904, when he began to take Borax, he had very severe fits, generally falling and often bruising himself; after his fits he was always dull, heavy, and most uncertain in his behaviour for some hours and at times some days.

Under the administration of Borax, although there was a marked diminution of the actual number of his fits, there was no alteration in their character; they were quite as severe as during the years when he was taking Bromide of Potassium, from 1896 to 1904.

After substituting Bromide of Potassium for Borax in March 1905, his fits, becoming more numerous, did not show any alteration in their character.

The effect of Borax and Bromide of Potassium on his Mental Condition between the fits.

From his admission in 1896 up to 1904, when taking Potassium Bromide, his mental condition was that of Dementia. After his fits he was always most uncertain in his behaviour, being prone on the least provocation to become violent, was peevish, and quite unable to control his actions - never employed himself in any useful manner.

In the year 1904, while taking Borax, he did not show the least mental improvement, although his fits were lessened by 26.8 per cent; he continued in the same irritable and impulsive state, and after his fit was just as prone to violence as previously.

In the year 1905 (from March), when taking Potassium Bromide, his mental condition got gradually worse as the dose was increased, and during the last 3 months, when he was having 40, 45 and 50 grains three times daily, he was very difficult to manage; his speech became slurred, his gait was staggering and he showed other signs of Bromide poisoning.

The effect of Borax & Potassium Bromide on his General Health.

During the year 1904, when he was taking Borax in 30, 60 and 90 grain doses daily, he at no time showed any symptoms of the drug disagreeing with him. He took his food and slept well at night, and was in his usual health.

During the year 1905 (from March), when he was taking Bromide of Potassium, he kept fairly well until the dose reached 45 grains three times daily, when his gait became

staggering, speech slurred, and it was very difficult to understand what he said, acere appeared on his skin, and he did not take his food well; during the last month, when dose was raised to 150 grains daily, his tongue was furred and breath offensive, and the above symptoms were exaggerated.

Case 3.

Jane A. Admitted January 2, 1900, aged 50.

As she had been for the last 7 years previous to her admission an inmate of the Union, no family history could be ascertained.

Mentally, she is suffering from Dementia, is quite unable to answer the simplest of questions and only smiles when addressed, is often very troublesome and difficult to manage, being noisy, restless, resistive and violently disposed.

I was quite unable to ascertain how long she had been suffering from Epilepsy.

Doses of Borax followed by Potassium Bromide given in this Case.

From Dec.24, 1903	to	Jan. 24,1904	No medicines were given		
" Jan.24, 1904	"	Feb. 24, "	Borax	10	grains three times daily.
" Feb.24, "	"	Mar. 24, "	"	15	"
" Mar.24, "	"	Nov.24, "	"	20	"
" Nov.24, "	"	April 24,1905	"	30	"
"April 24, 1905	"	July 24, "	"	40	"
" July 24, "	"	Aug.24, "	Pot.Brom.	15	"
" Aug.24, "	"	Sept.24, "	"	20	"
" Sept.24, "	"	Oct.24, "	"	30	"
" Oct. 24, "	"	Nov.24, "	"	40	"
" Nov.24, "	"	Dec.24, "	"	45	"
" Dec.24, "	"	Jan.24,1906	"	50	"

The effect of Borax followed by Potassium Bromide on the number of her fits.

The table giving her fits from admission, shows her day and night fits per year as follows:-

	day	night	Total
in 1900	42	70	112
" 1901	45	80	125
" 1902	77	154	231
" 1903	67	199	266
" 1904	6	25	31
" 1905	6	27	33

From her admission in 1900 until December 24,1903, when taking Potassium Bromide in gr.15 three times daily, her fits increased in number yearly the highest total being attained in 1903 when she had 266 fits, the following year, when taking Borax from increasing doses from 10 to 30 grains thrice daily, she only had 31 fits, being 235 less than year 1903.

When Borax treatment was commenced on January 24, 1904, in 10 grain doses thrice daily, her fits at once began to diminish in number, and during the months of April, May and June, while taking 60 grains of Borax daily, she only had 4 night and 1 day fits, in July she had 5 night fits, and during August, September and October, while still taking 60 grains daily of Borax, she only had 2 night fits. In November the dose of Borax was raised to 90 grains daily, and from the 24th of that month until April 24, 1905, when taking this dose, she only had 3 night fits and 2 day fits. From April 24, 1905, to July 24, 1905, she

was having Borax, 120 grains daily, when she had 10 night and 1 day fits.

During the following months, from July 24 to November 24, she was having Potassium Bromide in increasing doses from 15 to 45 grains daily, she had 14 night fits and 3 day fits, and the following month, when having Potassium Bromide in 50 grain doses thrice daily, she had no fits.

The effect of Borax and Potassium Bromide on her Temperature.

The following table gives her average morning and evening temperature per month, and doses of Borax and Bromide of Potassium taken.

Amount of Borax taken per day.	Average temperatures taken during month when no medicine administered.	Average Temperature per month. M	N
30 grains		97.7	97.5
45 "		97.4	97.8
60 "		97.5	97.5
60 "		97.1	97.8
60 "		97	97.3
60 "		96.9	96.9
60 "		97.3	97.5
60 "		97.5	97.7
60 "		97.3	97.3
60 "		97.3	97.5
60 "		96.8	97
90 "		97.1	97.4
90 "		97.9	98
90 "		97.4	97.5
90 "		97.6	97.8
90 "		97.6	97.7
120 "		97.3	97.5
120 "		97.2	97.2
120 "		97.7	97.9
Pot.Brom.daily			
45 grains		97.5	97.6
60 "		97.6	97.6
90 "		96.1	97.1
120 "		97	97.1
135 "		96.7	96.8
150 "		97.2	97.2

The effect of Borax and Potassium Bromide on her Temperature.

During the month, when no medicines were administered, her average temperature in the morning was 97.7, and in the evening 97.5.

The next month, when taking Borax, 30 grains daily, her average morning temperature fell slightly, being 97.4, but there was a slight rise in her evening temperature, which was 97.8.

When Borax, 45 grains daily, was given during the next month, her average morning temperature was much the same, being 97.5, and there was a slight fall in her evening temperature compared with the previous month, which was 97.5.

During the next 8 months, while taking Borax, 60 grains daily, her average morning temperature was 97.1, and the evening 97.4, showing little change from the previous month when Borax, 45 grains, was given daily.

The following 5 months her average temperature was practically unchanged when taking 90 grains of Borax daily, being 97.3 in the morning and 97.6 in the evening.

The next 3 months the dose of Borax was raised to 120 grains daily, but still her average temperature altered little, being 97.4 in the morning and 97.4 in the evening.

During the 19 months she was taking Borax in varying doses from 30 to 120 grains daily, her average morning temperature was 97.3, and her average evening temperature 97.5.

When taking Potassium Bromide for a month later, 45 grains daily, her average temperature was 97.5 in the

morning and 97.6 in the evening.

The next month Potassium Bromide was increased to 60 grains daily, when her average temperature was practically unchanged, being 97.6 in the morning and 97.6 at night.

During the following month, when dose of Potassium Bromide was 90 grains daily, her average morning temperature fell to 96.1, and her evening temperature to 97.1.

The next month, when taking Potassium Bromide, 120 grains daily, her morning temperature rose to 97, and her evening was unchanged, being 97.1.

The following month the dose of Potassium Bromide being raised to 135 grains daily, her average morning temperature fell to 96.7, and her evening temperature also fell to 96.8; and during the last month, taking 150 grains of Potassium Bromide daily, her average morning and evening temperature rose to 97.2.

This shows that while taking Potassium Bromide in varying doses from 45 to 150 grains daily for 6 months, her average morning temperature was 97.1, and in the evening her average temperature was 97.2.

So that when she was taking Borax and Potassium Bromide, 19 months of the former and 6 months of the latter drug, her average temperature for any month was only 98 in the evening, that being the highest average temperature recorded.

The effect of Borax and Potassium Bromide on her Bodily Weight.

The following table shews her weight per month in lbs., and doses of Borax and Potassium Bromide taken.

Amount of Borax taken per day.	Weight per month in lbs.
Weight during month when no medicine was taken	1109
30 grains	1119½
45 "	1121½
60 "	1049½
60 "	1111½
60 "	1084½
60 "	1087½
60 "	1084½
60 "	1066¾
60 "	1068
60 "	1077¾
90 "	1076¼
90 "	1083¼
90 "	1080½
90 "	1085¼
90 "	1080¾
120 "	1086
120	1104¼
120 "	1120¼
Pot.Brom.daily	
45 grains	1136½
60 "	1137
90 "	1143
120 "	1138
135 "	1127
150 "	1116¼

During the month when she was taking no medicines her bodily weight was 1109 lbs.

The next month, when taking Borax, 30 grains daily, her weight increased 10½ lbs.

The next month, when taking Borax, 45 grains daily, her weight was much the same, being 1121½ lbs.

During the following 8 months she was taking Borax, in 20 grain doses three times daily, her average weight for the month was 1079 lbs, being 42 lbs less than month when taking Borax, 45 grains daily.

The next 5 months, when taking Borax, 90 grains daily, her average weight was 1081 lbs, being a gain of only 2 lbs on the previous 8 months.

During the next 3 months, when dose of Borax was raised to 120 grains daily, her average weight was 1096 lbs, being a gain of 15 lbs on the previous 5 months.

This shows that during the time she was taking Borax in doses varying from 30 grains to 120 grains daily, there was very little material alteration in her bodily weight.

The following month Potassium Bromide being substituted for Borax, in 45 grains daily, her weight rose 16 lbs; and the next month, when taking Potassium Bromide, grains 60 daily, her weight was practically the same.

When the dose of Potassium Bromide was raised the following month to 90 grains daily, she gained 6 lbs, and when it was given in 40 grain doses three times daily, she lost 5 lbs, and lost 11 lbs the following month when taking Potassium Bromide, 135 grains daily.

The last month she lost another 11 lbs, when dose of Potassium Bromide was finally raised to 150 grains daily. So there was little alteration in her bodily weight during the period when Bromide of Potassium was administered in doses varying from 45 to 150 grains daily.

The effect of Borax and Potassium Bromide on her Pulse Rate.

The following table gives her average pulse rate per month, counted morning and evening, and doses of Borax and Potassium Bromide taken.

Amount of Borax taken per day	Average pulse rate during the month when no medicine taken	Average Pulse Rate. M	N
		79	79
30 grains		84	84
45 "		87	86
60 "		86	83
60 "		78	81
60 "		85	85
60 "		85	84
60 "		84	86
60 "		81	81
60 "		78	79
60 "		79	80
90 "		80	83
90 "		83	82
90 "		82	82
90 "		80	82
90 "		81	82
120 "		83	84
120 "		82	80
120 "		83	83
Pot.Brom.daily			
45 grains		83	85
60 "		85	85
90 "		81	83
120 "		84	84
135 "		79	81
150 "		79	85

During the month when she was taking no medicines, her average pulse rate was 79 in the morning and 79 in the evening.

The next month, when taking Borax, 30 grains daily, her average morning pulse rate was 84 and the evening 84, showing a slight rise on the previous month.

When taking Borax, 45 grains daily, the following month, her average pulse rate rose still higher, being 87 in the

morning and 86 in the evening.

During the next 8 months, while taking 60 grains of Borax daily, her average pulse rate fell, being 82 in the morning and 82 at night.

The following 5 months she was taking Borax, 90 grains daily, there was little change in her average pulse rate, being 81 in the morning and 82 in the evening.

When the dose of Borax was further raised to 120 daily, during the next 3 months at this dose her average pulse rate rose again, being 86 in the morning and 85 in the evening.

The next month Bromide of Potassium was substituted for Borax, the dose being 45 grains daily, when her average pulse rate, compared with that of the former 3 months, fell to 83 in the morning and 85 at night.

The dose of Bromide of Potassium was then raised to 60 grains daily the following month, when her average pulse rate kept much the same, being 85 in morning and 85 at night.

The dose of Potassium Bromide being again raised to 90 grains daily, her average pulse rate fell to 81 in the morning and 83 in the evening.

When taking Potassium Bromide, 120 grains daily, the next month, her average pulse rate rose slightly, being 84 in the morning and 84 at night.

The dose of Potassium Bromide being raised the following month to 135 grains daily, her average pulse rate fell to 79 in the morning and 81 in the evening.

And the last month, when taking Potassium Bromide,

150 grains daily, her average pulse rate did not change in the morning, being 79, but rose to 85 in the evening.

During the 19 months she was taking Potassium Bromide in varying doses from 30 to 120 grains daily, her average pulse rate was 82 in the morning and 83 in the evening.

And during the administration of this drug the high-
average
est pulse rate recorded was 87.

The 6 months while taking Potassium Bromide in varying doses from 45 to 150 grains daily, her average morning pulse rate was 81, and her average evening pulse rate was 83.

The effect of Borax and Potassium Bromide on the character of her fits.

From her admission in 1900 up to December 1903 she had very severe fits; as she always fell her face was often bruised. The fits left her very dull and heavy, irritable and dangerous.

During the 19 months she was having Borax in varying doses from 30 to 120 grains, her fits, although greatly diminished in number, were quite as severe as those she had previous to this treatment. She always fell in them, in fact there was no change whatever in their character.

While taking Potassium Bromide for the next 6 months her fits continued just as severe; she always fell and all she had were of the Grand Mal type.

The effect of Borax and Potassium Bromide on her Mental State between the fits.

From her admission in 1900 to December 24, 1903, her mental condition during these years (when she was having Potassium Bromide gr 15 3 times daily) was as follows:- She was dull, stupid, irritable and easily provoked to violence; after her fits she was always very heavy, and would sit for hours taking no notice of anything going on around her.

During the 19[illegible] months, when taking Borax in varying doses from 30 to 120 grains daily, her mental condition, during the first 6 months, was much the same; but after this date she became more irritable and more difficult to manage and, as the dose of Borax was raised, so her mental state became more unsettled, and during the last 3 months when she was having Borax in 120 grains daily, she was very irritable, running about the ward, shouting and singing, and if interfered with soon gave way to violence. So that Borax in larger doses than 30 grains 3 times daily did not seem to be suitable for her mentally.

When during the next 6 months Potassium Bromide was substituted for Borax, she soon began to benefit from the sedative action of the Bromide, and after the first 2 months, when she was having 30 grains of Potassium Bromide daily, she became quieter and easier to manage, and she remained fairly steady until the dose of Potassium Bromide was raised to 135 grains daily, when she became most stupid and was very irritable and violently inclined, having outbursts of noisy excitement when she would shout

for hours at a time; and when dose was further raised to 150 she became duller and heavy and very difficult to manage, showing that she was unable to stand the larger doses of Potassium Bromide.

The effect of Borax and Potassium Bromide on her General Health.

She is a big, strong woman, and has, since her admission, enjoyed good health.

During the 19 months when taking Borax her general health was good and she had no complication or discomfort of any kind while taking this drug.

During the next 6 months, while taking Potassium Bromide, her health was good until she was taking 150 grains daily. During January, 1906, when she developed a large axillary abscess which, after being incised, healed slowly, as at this period her mental condition was very unsettled and she pulled off her dressings and would not stay quiet in bed. Beyond this she was in good health during the time she was taking both drugs.

Case 4.

Thomas S.P., admitted May 17, 1904, aged 16.

No family history of Insanity, Epilepsy, Intemperance, or Phthisis could be ascertained.

History - has been weak-minded from birth and has since then been subject to Epilepsy, was sent to school, but was soon brought away on account of his fits, having learnt little. Sent to the Asylum as he had developed dangerous propensities, these being more pronounced after

his fits.

Mental Condition. He is an Imbecile, has a dull, heavy aspect, when addressed is slow in answering questions which he does in a hesitating, slurred manner; cannot read the clock and knows little of the value of money. Is sullen, irritable and violently disposed, perverted in his habits and addicted to masturbation.

Doses of Borax given in this Case.

From Nov.24, 1904	to	Dec.24, 1904	No medicines were administered.			
" Dec.24, "	"	Jan.24, 1905	Borax,	10	grains	3 times daily.
" Jan.24, 1905	"	Feb.24, "	"	15		"
" Feb.24, "	"	June 24, "	"	20		"
" June 24, "	"	Sept.24, "	"	30		"
" Sept.24, "	"	Dec.24, "	"	40		"
" Dec.24, "	"	Jan.24,1906	"	50		"

The effect of Borax on the number of his fits.

From his admission on May 17, 1904, until November 24, 1904, while taking Potassium Bromide, 45 grains daily, he had 24 day and 288 night fits.

During the month from November 24 to December 24,1904, while taking no medicine, he had no day and only 15 night fits.

The next month from December 24 to January 24, 1905, while taking Borax, grains 30 daily, he had 4 day and 29 night fits.

When taking Borax, 45 grains daily, the next month, he had 4 day and 30 night fits.

During the time from February 24 to June 24, 1905, he was taking Borax, 60 grains daily, and had 11 day and 180 night fits, being a monthly average of 45 night fits, showing that his night fits had increased in number as dose was increased compared with months when he was having Borax, 30 and 45 grains daily.

The next three months he was having Borax, 90 grains daily, from June 24, 1905, to September 24, 1905, and had 8 day and 244 night fits, being a monthly average of 81 night fits, the monthly average being increased double to the previous period when he was having Borax, 60 grains daily.

From September 24 to December 24, 1905, the dose of Borax was raised to 120 grains daily, and during those months he had 14 day fits and 269 night fits, showing a monthly average of 89 night fits, being a still higher monthly average as compared with previous 3 months when

taking Borax, 90 grains daily.

The last month, when taking 50 grains of Borax daily, from December 24, 1905, to January 24, 1906, he had 2 day and 32 night fits, showing a marked reduction in the number of his night fits.

This shows that from the time he began taking Borax in 10 grain doses 3 times a day up to the time when taking Borax, 120 grains daily, his night fits steadily increased in number, and it was only when Borax was raised finally to 150 grains daily that his night fits diminished in number.

The number of fits above quoted are not from annexed sheet showing his fits per month from admission, but counted from the sheets made up of his daily and nightly fits.

The result of Borax treatment in this case as regards the reduction in the number of his fits was unsatisfactory.

The effect of Borax on his Pulse Rate.

The following table shows his average pulse rate per month, counted night and morning, and doses of Borax taken.

Amount of Borax taken daily.		M	N
	Pulse Rate during month when no medicines taken.	85	86
30 grains		91	97
45 "		87	94
60 "		84	96
60 "		82	94
60 "		81	91
60 "		82	95
90 "		84	95
90 "		83	87
90 "		76	85
120 "		90	100
120 "		87	91
120 "		88	93
150 "		89	94

The effect of Borax on his Pulse Rate.

During the month when he was taking no medicines, his average pulse rate was 85 in the morning and 86 at night.

When taking Borax, 30 grains daily, during the next month, his average pulse rate rose to 91 in the morning and 97 at night.

The following month while taking Borax, 45 grains daily, his average pulse rate fell to 87 in the morning and 94 in the evening.

During the next 4 months his average pulse rate, compared with the previous month, fell in the morning to 82 and in the evening was unchanged, being 94, while taking Borax in 20 grains 3 times daily.

The next 3 months while taking Borax, 90 grains daily, his average pulse rate was 81 in the morning and 89 in the evening, showing a slight morning, and more marked evening fall compared with the previous 4 months.

The dose of Borax being raised to 120 grains daily for the next 3 months, his average pulse rate in the morning was unchanged, being 81, and in the evening there was a slight increase, being 92.

During the last month, when taking Borax, 150 grains daily, there was a slight increase, being 89 in the morning, and showing an average pulse rate of 94 at night.

This shows that during the 13 months he was taking Borax in doses varying from 30 to 150 grains daily, his average morning pulse rate was 84, and his average pulse rate in the evening was 93. The highest average pulse rate recorded was 96, which was his average evening pulse

rate during the month when he was taking Borax, 60 grains daily.

The effect of Borax on his bodily weight.

The following table shews his bodily weight per month, and doses of Borax given.

Amount of Borax taken daily.	Weight during month when no medicines taken	Weight in lbs.
		$876\frac{1}{4}$
30 grains		924
45 "		$922\frac{3}{4}$
60 "		$924\frac{3}{4}$
60 "		928
60 "		$960\frac{1}{2}$
60 "		978
90 "		$963\frac{1}{2}$
90 "		$981\frac{1}{4}$
90		984
120 "		$964\frac{3}{4}$
120 "		930
120 "		952
150 "		$914\frac{3}{4}$

During the month when he was taking no medicines his bodily weight was $876\frac{1}{4}$ lbs.

The next month, when taking Borax, 30 grains daily, he gained 48 lbs, and during the following month, when taking Borax, 45 grains daily, his weight was almost unchanged.

During the next 4 months, when taking Borax, 60 grains daily, his average weight was 945 lbs, being a gain of 23 lbs on the previous month when taking Borax, 45 grains daily.

The next 3 months, when taking Borax, 90 grains daily, his average weight was 943 lbs, being only 2 lbs less than previous 4 months.

The following 3 months, while taking Borax, 120 grains, his average weight was 949 lbs, being 6 lbs less than the 3 previous months.

When dose of Borax was raised to 150 grains, he lost 35 lbs compared with the average weight of last 3 months.

The effect of Borax on his Temperature.

The following table shows his average temperature, taken night and morning, and doses of Borax administered.

Amount of Borax taken daily.	Average temperatures during month when no medicines taken	Average Temperatures. M	N
30 grains		96.2	96.6
45 "		96.3	96.4
60 "		96.2	96.7
60 "		96.2	96.8
60 "		96.2	97.2
60 "		96.2	97.2
90 "		95.9	97.2
90 "		96.6	97.2
90 "		96.7	97.3
120 "		97	96.8
120 "		96.4	97.5
120 "		96.6	96.8
150 "		96.2	97
		96.7	97.3

During the month when he was taking no medicines, his average morning temperature was 96.2 and in the evening 96.6.

The next month, when taking Borax, 30 grains daily, his average temperature was much the same being 96.3 in the morning and 96.4 at night.

When taking 45 grains of Borax daily, the next month, there was a rise in his average evening temperature which

was 96.7, his morning temperature being little altered and recording 96.2.

During the next 4 months while taking Borax, 60 grains daily, his average morning temperature was little changed, being 96.1, in his average evening temperature there was a slight rise, being 97.1.

The next 3 months his average temperature was practically the same, being 96.7 in the morning and 97.1 in the evening, when taking Borax, 90 grains daily.

The dose of Borax being raised to 120 grains daily, the following 3 months, the average temperature was little altered, being 96.4 in the morning and 97.1 in the evening.

And when the dose of Borax was finally raised the last month to 150 grains daily, his average morning temperature was 96.7, and in the evening 97.3.

During the 13 months this patient was taking Borax in doses varying from 30 to 150 grains daily, his average morning temperature was 95.8, and his average evening temperature was 97.3.

During these months his highest temperature was 97.5, being the average evening temperature when he was taking Borax, 120 grains, and being the first month at this dose.

The effect of Borax on the character of his fits.

From his admission up to December 24, 1904, when Borax was administered, he was having very severe fits which left him in a very dull and stupid state, often being so shaky as to be unable to get about without help. The tonic stage of his fits was very severe, and he was

comatosed for some considerable time after.

When Borax was administered, although his fits increased in number at night each month, the character of his fits was changed. The tonic stage was not nearly so severe, and he was much less comatosed after, some of his fits were fairly slight, approaching the Petit Mal type - in those he did not fall and was not materially affected mentally after them.

The effect of Borax on his Mental State between the fits.

From his admission until December 24, 1904, he was very dull and stupid, and after his fits was often so shaky that he had to be kept in bed to prevent him falling and injuring himself. When taking Borax in varying doses from 30 to 150 grains daily, his mental condition improved considerably, and he became much brighter and stronger on his legs; this improvement was maintained until the dose of Borax was raised to 50 grains 3 times daily, when he became (during the 2nd week when taking this dose) dull and heavy, and so shaky that he had to be kept in bed. His temperature was 99 at night on one occasion, and dose had to be reduced to 120 grains daily when he at once improved and was able to get up again, and on dose being again raised to 150 grains daily he at once became dull and heavy and shaky, showing that the highest dose he was able to stand was 120 grains daily, and on this dose he was bright and happy and got about well.

It was curious that in this case Borax had such a beneficial effect on his mental state without reducing the number of his fits, although their character was

altered, being much less severe, which was probably the reason of his improved mental state.

The effect of Borax on his General Health.

During the time when he was taking Borax in varying doses from 30 to 120 grains, he took his food and slept well and appeared to have experienced no discomfort from the drug until the dose was raised to 150 grains daily when he soon refused his food and had to be given fluid nourishment, and was dull, heavy and stupid and violently inclined and so shaky as to necessitate his confinement in bed.

Case 5.

William P., admitted April 24, 1899, aged 22.

Family History. Paternal uncle insane and another paternal uncle epileptic. No history of Phthisis or Intemperance.

Previous History - has been subject to Epilepsy since age of 14 years - did not learn well at school and on account of his fits was unable to follow any occupation. For last 3 years has been gradually becoming more irritable and violent, especially after his fits, hence the necessity for Asylum treatment.

Mentally. He is suffering from Dementia, is dull and obtuse, reacts slowly to questions and cannot sustain a conversation, displays little interest in his surroundings, is sullen, irritable, and at times very violent; 3 years ago he struck another patient on the head with a

broom, fracturing his skull.

Doses of Borax followed by Potassium Brom. given in this Case.

From	Dec.24,	1903	to	Jan.24,	1904	No medicines were administered.	
"	Jan.24,	1904	"	Feb.24,	"	Borax 10 grains	3 times daily
"	Feb.24,	"	"	March 24,	"	" 15	"
"	March 24,	"	"	July 24,	"	" 20	"
"	July 24,	"	"	Oct.24,	"	" 30	"
"	Oct.24,	"	"	Jan.24,	1905	" 40	"
"	Jan.24,	"	1905	Feb.24,	"	" 50	"
"	Feb.24,	"	"	March 24,	"	Pot.Brom.15	"
"	March 24,	"	"	June 24,	"	" 20	"
"	June 24,	"	"	Sept.24,	"	" 30	"
"	Sept.24,	"	"	Dec.24,	"	" 40	"
"	Dec.24,	"	"	Jan.24,	1906	" 50	"

The effect of Borax followed by Potassium Bromide on the number of his fits.

From his admission in April 1899 until December 24, 1903, he was having Potassium Bromide, grains 15 3 times a day.

The following table shows his day and night fits each year since his admission:-

	Fits per year.		
	Day	Night	Total
in 1899 (From April 24)	4	72	76
" 1900	115	59	174
" 1901	413	64	477
" 1902	588	196	784
" 1903	43	212	255
" 1904	446	189	635
" 1905	482	330	812

In 1899, during the 9 months after his admission in April, he had very few fits, only having 4 day and 72 night fits.

In 1900 his fits, especially those during the day, greatly increased in number, being 115, his night fits being comparatively small in number, 59.

In 1901 his day fits increased by 298 compared with the previous year, being 413 in number, while his night fits were 64, being only 5 more than the previous year.

In 1902 his day fits still increased being 588, and there was also a decided increase in his night fits, being 196.

In 1903 his day fits diminished greatly in number,

being only 43, while his night fits increased to 212.

During the year 1904 he was having Borax in varying doses from 30 to 150 grains daily, and his day fits increased over 400 as compared with year 1903, and this increase was most noticeable when he was taking the larger doses of Borax, especially doses of 40 and 50 grains thrice daily; his night fits were less than the previous year, being 189, and these also increased in number when larger doses of Borax were taken, being highest in number while he was taking doses of 40 and 50 grains 3 times daily. The following 12 months, when taking Potassium Bromide, his fits did not diminish in number until dose was raised to 40 grains daily, after which there was a marked diminution which continued when taking 40 and 50 grains daily.

The effect of Borax followed by Potassium Bromide on his Temperature

The following table shows his average morning and evening temperature per month, and doses of Borax and Potassium Bromide given.

Amount of Borax taken daily.	Average Temperatures during month when no medicine taken	Average Temperatures. M	N
		97.2	97.6
30 grains		97.2	97.7
45 "		97.3	97.6
60 "		97	97.9
60 "		96.9	97.6
60 "		97	97.2
60 "		97.4	97.8
90 "		97.2	97.7
90 "		97.2	97.6
90 "		96.7	96.9
120 "		97.1	97.4
120 "		96.6	97.3
120 "		96.6	97
150 "		96.4	97.5
Pot.Brom.daily			
45 grains		96.2	97.4
60 "		96.2	97.2

(contd.)

Pot. Brom. daily	Average Temperature. M	N
60 grains	96.6	97.5
60 "	96.5	97.5
90 "	97	97.7
90 "	97	97.5.
90 "	97.3	97.3
120 "	96.3	96.9
120 "	96.5	97.2
120 "	96.3	97
150 "	96.7	97

The effect of Borax followed by Potassium Bromide on his Temperature.

During the month when no medicines were administered, his average morning temperature was 97.2 and in the evening 97.6

The next month, taking Borax, 30 grains daily, there was little change, his average morning temperature being 97.2, and his average evening temperature 97.7.

While taking Borax, 45 grains daily, the next month, his average morning temperature was 97.3, and in evening 97.6.

The following 4 months, taking Borax, 60 grains daily, there was a slight fall in his average morning temperature compared with the previous month, being 97, his evening temperature remained unchanged, being 97.6.

The next 3 months, when taking Borax, 90 grains daily, his average temperature was practically unchanged, being 97 in the morning, and in the evening 97.4.

The dose of Borax being raised to 120 grains daily, his average morning temperature for the next 3 months fell to 96.7, and in the evening was 97.2.

The dose being finally raised to 150 grains of Borax daily for the next month, his average morning temperature

was 96.4, and in the evening 97.5, there being a slight morning fall and evening rise as compared with average temperature of previous 3 months.

This shows that during the 13 months he was taking Borax in varying doses from 30 to 150 grains daily, his average morning temperature was 96.2, and his average evening temperature was 97.4.

The highest average temperature recorded while taking Borax was 97.8, being his average evening temperature during the 4th month, when he was taking Borax, 60 grains daily.

The next month Bromide of Potassium was substituted for Borax, in 45 grains daily, when his average morning temperature was 96.2, and in the evening 97.4.

The next 3 months, when taking Potassium Bromide, 60 grains daily, there was a slight rise in his average morning temperature which was 96.4, and a slight fall in his evening temperature which was 97.

When taking Potassium Bromide, 90 grains daily, the next 3 months, there was a slight rise in both his morning and evening temperature, the average morning temperature for the 3 months being 97.1, and in the evening 97.1.

The next 3 months, when taking Potassium Bromide, 120 grains daily, his average morning temperature was 96.3, and in the evening 97, showing a slight morning fall.

The next month, when dose of Potassium Bromide was finally raised to 150 grains daily, his average morning temperature was 96.7, and in the evening 97.

During the 11 months when he was taking Potassium

Bromide in varying doses from 45 to 150 grains daily, his average morning temperature was 96.6, and his average evening temperature was 97.2.

While taking Potassium Bromide his highest average temperature during the 11 months was 97.7, being his average evening temperature during the first month he was taking Potassium Bromide, 90 grains daily.

The effect of Borax followed by Potassium Bromide on his Pulse Rate

The following table shows his average Pulse Rate, counted night and morning, and doses of Borax followed by Potassium Bromide given, per month.

Amount of Borax taken daily.	Pulse Rate during month when no medicine taken	Average Pulse Rate. M	N
30 grains		82	92
45 "		80	90
60 "		87	92
60 "		79	90
60 "		81	84
60 "		88	91
90 "		86	84
90 "		75	78
90 "		81	86
120 "		77	77
120 "		78	79
120 "		78	79
150 "		83	87
Pot.Brom.daily		85	87
45 grains		82	83
60 "		83	86
60 "		84	94
60 "		85	98
90 "		84	92
90 "		82	87
90 "		76	77
120 "		78	80
120 "		76	82
120 "		81	80
150 "		84	93

The effect of Borax followed by Potassium Bromide on his Pulse Rate.

During the month when he was taking no medicines his average pulse rate was 82 in the morning and 92 at night.

The next month, when taking Borax, 30 grains daily, his average pulse rate fell to 80 in the morning and 90 at night.

When taking Borax, 45 grains daily, the next month, his average pulse rate rose to 87 in the morning and 92 at night.

The next 4 months when taking Borax, 60 grains daily, his average pulse rate in the morning was 82 and in the evening 87, showing a fall as compared with previous month.

When taking Borax, 90 grains daily, the next 3 months, his average morning pulse rate fell to 77, and his average evening pulse rate also fell, being 80.

The following 3 months, when Borax was raised to 120 grains daily, his average pulse rate rose slightly, being 79 in the morning and 81 in the evening.

The next month the dose being finally raised to 150 grains daily, his average pulse rate in the morning rose to 85, and the evening pulse rate also rose, being 87.

During the 13 months he was taking Borax in varying doses from 30 to 150 grains daily, his average pulse rate was 81 in the morning and 84 at night.

His highest average pulse rate during the month he was taking Borax was 92, this being his average pulse rate in the evening during the month when he was taking Borax, 45 grains daily.

When Potassium Bromide was substituted for Borax the

next month in 15 grain doses 3 times daily, his average pulse rate fell to 82 in the morning and 83 at night.

During the next 3 months, when he was taking Potassium Bromide, 60 grains daily, his average pulse rate for the 3 months was unchanged in the morning, being 84, but rose to 92 at night.

The next 3 months, when taking Potassium Bromide, 90 grains daily, his average pulse rate fell to 80 in the morning and 84 in the evening.

The following 3 months Potassium Bromide was given in 40 grain doses 3 times daily, when his average pulse rate again fell, being 78 in the morning and 80 at night.

When dose was finally raised to 150 grains daily of Potassium Bromide, his average pulse rate rose to 84 in the morning and 93 at night as compared with the previous 3 months.

During the 11 months he was taking Potassium Bromide in varying doses from 45 to 150 grains his average morning pulse rate was 81, and his average evening pulse rate was 86.

During the months he was taking Potassium Bromide his highest average pulse rate for any month was 98, being his average evening pulse rate during the third month when taking Bromide of Potassium, 60 grains daily.

<u>The effect of Borax followed by Potassium Bromide on his Bodily Weight.</u>

The following table shows his bodily weight in lbs per month, and gives doses of Borax and Potassium Bromide

taken.

Amount of Borax taken daily.		Weight per month in lbs.
	Bodily weight during month when no medicines taken	886¼
30 grains		1020¾
45 "		1046
60 "		1042
60 "		1029½
60 "		985
60 "		919¼
90 "		871
90 "		874
90 "		909
120 "		913¾
120 "		901½
120 "		937
150 "		972
Pot.Brom.daily		
45 grains		940
60 "		995¾
60 "		1017
60 "		1070½
90 "		1022
90 "		983
90 "		973
120 "		920
120 "		917½
120 "		969
150 "		974¼

The effect of Borax followed by Potassium Bromide on his Bodily Weight.

During the month when no medicines were administered his weight was 886¼ lbs.

The next month, when taking Borax, 30 grains daily, his weight rose 134½ lbs.

When taking Borax, 45 grains, the next month, he gained 26 lbs, and when he was having Borax, 60 grains, for the next 4 months, he lost 53 lbs, his average weight for that time being 993 lbs.

During the next 3 months, when taking Borax, 90 grains daily, he only lost 9 lbs, his average weight being 884 lbs.

The next 3 months, while taking Borax, grains 120

daily, he gained 33 lbs, his average weight being 917 lbs.

The next month, when taking Borax, 150 grains daily, he gained 55 lbs on the average weight of last 3 months.

When Potassium Bromide was given instead of Borax the next month, 45 grains daily, he lost 32 lbs, and during the following 3 months when taking Potassium Bromide, 60 grains daily, he gained 87 lbs comparing his average weight with the last month.

The next 3 months, when taking Potassium Bromide, 90 grains daily, he lost 35 lbs.

The following 3 months when dose of Potassium Bromide was raised to 120 grains daily, he lost 57 lbs, and when dose was finally raised to 150 grains daily of Potassium Bromide, he gained 39 lbs.

<u>The effect of Borax followed by Potassium Bromide on the character of his fits.</u>

This patient has had since his admission up to January 24, 1904, when treatment of Borax was commenced, very severe fits; he always fell down, generally with a loud cry. The tonic stage was severe and he was much convulsed after and coma was present for some time. When taking Borax in varying doses from 30 to 150 grains daily, the character of his fits was unchanged, they were just as severe in every way as previously.

After Potassium Bromide was substituted for Borax in varying doses from 45 to 150 grains daily, there was no alteration in the character of his fits until he was taking this drug in large doses, when they became less

severe, especially when taking 40 grains and later 50 grains daily, his fits then being much less severe, he did not cry out; both the tonic and clonic stages were shortened and he was much less comatosed after.

The effect of Borax and Potassium Bromide on his Mental Condition between the fits.

His mental condition between the fits, previous to the administration of Borax, was most unsatisfactory; he was dull, stupid, sullen and irritable and often very violent and difficult to manage and he was much worse after his fits.

During the 13 months he was taking Borax in varying doses his mental state, if anything, was worse, and this drug did not seem to benefit his mental state in the least; he was more irritable, sullen, and more prone to become violent on the least provocation, and these conditions were more pronounced after his fits.

During the next 11 months when he was taking Potassium Bromide in doses varying from 45 to 150 grains daily when he reached doses of 120 grains daily, this drug had a pronounced beneficial effect on his mental state between his fits, and he was much less irritable and less inclined to be violent; when dose was raised to 45 and 50 grains daily he became dull and stupid and was decidedly under the influence of the drug.

The effect of Borax followed by Potassium Bromide on his General Health.

While taking Borax in varying doses from 30 grains to 120 grains daily, he took his food and slept well and did not appear to experience any physical discomfort from the drug, but when the dose was raised to 150 grains daily he became heavy, shaky and uncertain on his legs and for a few days had to be confined to bed and drug temporarily reduced.

When taking Potassium Bromide he seemed in good physical health until dose was increased to 150 grains daily, when he showed sighs of Bromide poisoning. His breath was foetid, gait very shaky, he was heavy and dull and could not be roused, eruptions of acere appeared on his skin, and he refused his food. These symptoms soon subsided when drug was reduced.

Case 6.

Mary H. admitted April 17, 1901

Family History - Father epileptic and also a drunkard - no history of Insanity or Phthisis.

Previous History - Has suffered from Epilepsy since 6 years of age. Had an attack of Chorea at 5 years of age, never been to school and was quite unable to learn anything. Menstruated at age of 16 years, but has not been regular. 3 weeks previous to her admission had a series of fits after which she became restless, excited and violent.

Mentally - She is an idiot, displays very limited intelligence,

can utter a few monosyllables, but she uses those in a parrot-like fashion quite irrespective of what is said to her. Is perverted in her habits and often restless, noisy and violently disposed.

The doses of Borax followed by Potassium Bromide given in this Case.

From Dec.24,	1903	to Jan.24,	1904	No medicine was administered		
" Jan.24,	1904	" Feb.24,	"	Borax	10	grains 3 times daily
" Feb.24,	"	"March 24,	"	"	15	"
"March 24,	"	" July 24,	"	"	20	"
" July 24,	"	" Oct.24,	"	"	30	"
" Oct.24,	"	" Jan.24,	1905	"	40	"
" Jan.24,	1905	" Feb.24,	"	"	50	"
" Feb.24,	"	"March 24,	"	Pot.Brom.	15	"
"March 24,	"	" June 24,	"	"	20	"
" June 24,	"	" Sept.24,	"	"	30	"
" Sept.24,	"	" Dec.24,	"	"	40	"
" Dec.24,	"	" Jan.24,	1906	"	50	"

MARY H.

Number of day and night fits since her admission on April 17, 1901.

	Jan. d. n.	Feb. d. n.	Mar. d. n.	April d. n.	May d. n.	June d. n.	July d. n.	Aug. d. n.	Sep. d. n.	Oct. d. n.	Nov. d. n.	Dec. d. n.	Total of d. n.	Total.
1901.	- -	- -	- -	2. 6.	2. 3.	4. 6.	3. 7.	1. 14.	3. 0.	12.4.	5. 1.	2. 5.	34. 51.	85.
1902.	2. 7.	0. 1.	2. 5.	2. 7.	4. 6.	4. 3.	5. 8.	2. 4.	5. 5.	11.5.	5. 7.	5.14.	47..77.	124.
1903.	9.13.	3. 4.	5.13.	2. 1.	3. 7.	4. 4.	4. 7.	3. 6.	2. 2.	3.5.	7.11.	2.18. all med. stopped.	47. 91.	148.
1904.	3.11. Borax, gr.x.	2. 7. Borax, gr.15.	4. 3. Borax, gr.20.	2. 4.	2.10.	1. 7.	2. 6. Borax, gr.30.	6. 3.	2. 3.	6.6. Borax, gr.40.	0. 6.	3. 5.	33. 71.	104.
1905.	0. 9. Borax, gr.50.	2. 6. Pot.Bro. gr.15.	0. 1. P.B. gr.20.	3. 8.	1.14.	1. 3. Pot.Brom. gr.30.	0. 5.	1. 5.	7. 9. Pot.Brom. gr.40.	1.3.	3. 2.	0. 1. Pot Brom. gr.50.	19. 66.	85.
1906.	1. 1 Pot.Brom. gr.50.													

The effect of Borax followed by Potassium Bromide on the number of her fits.

The following table shows her day and night fits since her admission:-

	Day	Night	Total
In 1901 (from April 17)	34	51	85
" 1902	47	77	124
" 1903	47	91	148
" 1904	33	71	104
" 1905	19	66	85

From her admission in April 1901 up to December 24, 1903, she was having Potassium Bromide, 45 grains daily, and during this period her fits increased yearly in number.

From December 24, 1903, to January 24, 1904, while taking no medicine, there was a slight increase in her night fits.

But the next month, when taking Borax in 10 grain doses thrice daily, they fell in number, and this diminution continued while she was taking Borax, 45 grains daily, and during the 4 months she was having Borax, 60 grains daily, she only had 5 day and 16 night fits; during the following 3 months, from July 24, 1904, to October 24, 1904, she had 10 day and 10 night fits when taking Borax, 90 grains daily.

The next 3 months, from October 24, 1904, to January 24, 1905, while taking Borax, 120 grains daily, she had only 7 day fits, but her night fits rose in number being 22.

And during the next month, from January 24 to February

24, 1905, when taking Borax, 150 grains daily, she had no day fits and only 2 during the night.

Showing that the month during which she had least fits, while taking Borax for 13 months, was when dose was raised to 150 grains daily.

The next month, from February 24, 1905, to March 24, 1905, Potassium Bromide was substituted for Borax in 15 grain doses thrice daily, during which month she had 2 day and 5 night fits.

The following 3 months, from March 24, 1905, to June 24, 1905, while taking Potassium Bromide, gr.60 daily, she had 5 day and 25 night fits.

During the next 3 months, from June 24, 1905, to September 24, 1905, her day fits were reduced to one and her night fits were 15, while taking Potassium Bromide, 90 grains daily.

The following 3 months, when dose of Potassium Bromide was raised to 120 grains daily, from September 24, 1905, to December 24, 1905, her day fits rose to 6, and her night fits fell to 6.

The next month, from December 24, 1905, to January 24, 1906, while taking Potassium Bromide, grains 150 daily, she had only one fit during the day and only one at night.

Showing that during the 11 months she was taking Potassium Bromide the month she had least fits was when dose was raised to 150 grains daily.

The effect of Borax followed by Potassium Bromide on her Bodily Weight.

The following table gives her weight in lbs, and doses of Borax and Potassium Bromide given:-

Amount of Borax taken daily.	Weight in lbs.
Weight during month when no medicine given	736
30 grains	751
45 "	753
60 "	741
60 "	738
60 "	749
60 "	720
90 "	714
90 "	716
90 "	723
120 "	732
120 "	731
120 "	746
150 "	761
Pot.Brom.daily	
45 grains	768
60 "	783
60 "	803
60 "	795
90 "	800
90 "	821
90 "	812
120 "	789
120 "	793
120 "	801
150 "	814

During the month when no medicines were administered her bodily weight was 736 lbs.

The next month, when she was taking Borax, 30 grains daily, she gained 15 lbs, her weight being 751 lbs.

When Borax was given 45 grains daily, during the next month, her weight was practically unchanged, being 753 lbs.

During the next 4 months, while taking Borax, 60 grains daily, her average weight was 737 lbs, being 16 lbs less than the previous month when taking Borax, 45 grains daily.

The next 3 months she was taking Borax, 90 grains daily, when her average weight was 717 lbs, being 20 lbs less than average weight of previous 3 months.

The dose of Borax was then raised to 120 grains daily, for next 3 months, when her average weight was 736 lbs, being a gain of 19 lbs on the previous 3 months.

The next month, while taking Borax, 150 grains daily, her weight was 761 lbs, being a gain of 25 lbs.

This shows that during the 13 months she was taking Borax her highest monthly weight recorded was during the month when she was taking this drug, 150 grains daily.

The next month Potassium Bromide was substituted for Borax in 15 grain doses daily, when her weight was 768 lbs, being a slight increase on the previous month when taking Borax, 150 grains daily.

The following 3 months Bromide of Potassium was taken, 60 grains daily, when her average weight was 797 lbs, being an increase of 29 lbs as compared with previous month.

The next 3 months the dose of Potassium Bromide was raised to 90 grains daily, when her average weight was increased by 54 lbs, being 811 lbs.

The dose of Potassium Bromide was then raised to 120 grains daily for next 3 months, when her average weight was 794 lbs, being a loss of 17 lbs.

The next month dose of Potassium Bromide was 150 grains daily, when her weight was 814 lbs, being an increase of 20 lbs. on her average weight for previous 3 months.

During the 11 months she was taking Potassium Bromide her highest recorded weight for one month was when she

was taking 150 grains daily, when her weight was 814 lbs.

The effect of Borax followed by Potassium Bromide on her Temperature.

The following table shows her average morning and evening temperature per month, and doses of Borax and Potassium Bromide given:-

Amount of Borax taken daily.	Temperatures during month when no medicine taken	Average Temperatures M	N
		97.3	97.3
30 grains		97	97.3
45 "		97	97.4
60 "		97.2	97.3
60 "		97.1	97.6
60 "		96.8	97.3
60 "		97.4	97.9
90 "		97.4	97.7
90 "		97.4	97.5
90 "		97.3	97.5
120 "		96.9	97.1
120 "		97.2	97.1
120 "		97.2	97.2
150 "		97.3	97.3
Pot.Brom.daily			
45 grains		97.6	97.5
60 "		97.5	97.5
60 "		97.2	97.4
60 "		97.3	97.3
90 "		97.2	97.6
90 "		97.4	97.5
90 "		97	97.2
120 "		96.7	96.8
120 "		96.8	97
120 "		96.8	96.8
150 "		96.7	96.8

During the month when she was taking no medicines her average morning temperature was 97.3, and in the evening 97.3.

The next month there was a slight drop in her average morning temperature, which was 97, her evening temperature being unchanged, 97.3, while taking Borax, grains 30 daily.

The next month, when taking Borax, 45 grains, her average morning temperature was unchanged, being 97, and there was little alteration in her evening temperature which was 97.4.

The following 4 months, while taking 60 grains of Borax daily, there was practically no change, her average morning temperature being 97.1, and her average evening temperature being 97.5.

The next 3 months there was a slight morning rise, her evening temperature being unchanged, while taking Borax, 90 grains daily, average temperature in morning 97.3 and in evening 97.5.

The dose of Borax was raised to 120 grains daily for the next 3 months, when her temperature fell a shade, being 97.1 in the morning, and at night her average temperature was 97.1.

The following month, when taking Borax, in 50 grain doses 3 times daily, her average temperature rose slightly, being 97.3 in the morning and 97.3 at night.

During the 13 months she was taking Borax in varying doses from 30 to 150 grains daily, her average morning temperature was 97.1, and her average evening temperature 97.4.

The highest average temperature recorded for any month was 97.9, being her average evening temperature during the 4th month when taking Borax, 60 grains daily.

The next month Potassium Bromide was substituted for Borax, 45 grains daily, when her average temperature rose slightly, being 97.6 in the morning and 97.5 at night

as compared with the last month when she was taking Borax, 150 grains daily.

The following 3 months, when taking Potassium Bromide, 60 grains daily, her average morning temperature was 97.3, and 97.4 at night, being a slight fall on the previous month.

The next 3 months, taking Potassium Bromide, 90 grains daily, her average temperature was practically unchanged, being 97.2 in the morning and 97.4 at night.

The dose of Potassium Bromide being now raised to 120 grains daily, for next three months, her average temperature fell, being 96.7 in the morning and 96.8 at night.

During the next month, when taking Potassium Bromide, 150 grains daily, her average temperature was the same, being 96.7 in the morning and 96.8 at night.

During the 11 months when she was taking Potassium Bromide in varying doses from 45 to 150 grains daily, her morning average temperature was 97.1, and her average evening temperature was 97.1.

The highest recorded average temperature for any month during the administration of Potassium Bromide was 97.6, being her average evening temperature during the first month when taking the drug, 90 grains daily.

<u>The effect of Borax followed by Potassium Bromide on her Pulse Rate.</u>

The following table shows her average morning and evening pulse rate per month, and doses of Borax and Potassium Bromide given:-

Amt. of Borax taken daily.	Average Pulse Rate during month when no medicines given	Average Pulse Rate. M	N
30 grains		77	82
45 "		91	87
60 "		90	88
60 "		88	89
60 "		83	84
60 "		87	90
60 "		91	91
90 "		88	86
90 "		83	83
90 "		79	80
120 "		82	82
120 "		80	81
120 "		84	82
150 "		84	83
Pot. Brom. daily			
45 grains		82	83
60 "		83	83
60 "		84	88
60 "		85	82
90 "		83	84
90 "		85	86
90 "		84	84
120 "		81	86
120 "		83	82
120 "		83	82
150 "		82	83

The effect of Borax followed by Potassium Bromide on her Pulse Rate.

During the first month while taking no medicines, her average pulse rate was 77 in the morning and 82 at night.

The next month, while taking Borax, 30 grains daily, her average morning pulse was increased by 14 beats, being 91, and her running pulse was slightly increased, being 87.

The following month, while taking Borax, 45 grains daily, her average morning pulse rate was 90, and 88 at night, showing a slight morning fall and a slight evening rise compared with the previous month.

During the next 4 months, while taking Borax, 60 grains daily, her average pulse rate changed little from the

previous month, being 87 in the morning and 88 at night.

The next 3 months, when taking Borax, 90 grains daily, her average pulse rate fell to 83 in the morning and 86 at night.

The next 3 months when taking Borax, 120 grains daily, her average pulse rate still fell, being 82 in the morning and 81 at night.

The last month, while taking Borax, 150 grains daily, her average pulse rate was 84 in the morning and 83 at night, being a slight rise.

During the 13 months she was taking Borax in varying doses from 30 to 150 grains daily, her average morning pulse rate was 85 in the morning and 84 at night.

The highest recorded pulse rate for the 13 months during which she was taking Borax, was 91, and this was her average pulse rate on 3 occasions, being her average morning pulse rate during the month when taking 30 grains daily, and being her average morning and night pulse rate when she was taking 60 grains daily for the third month, at this dose.

Potassium Bromide being now substituted for Borax in 15 grain doses 3 times daily, her average pulse rate during the month at this dose was 82 in the morning and 83 at night, being little changed as compared with last month she was taking Borax, 150 grains daily.

The next 3 months she was taking Potassium Bromide, 60 grains daily, when her average pulse rate rose slightly, being 84 in the morning and 84 at night.

The following 3 months, when taking Potassium Bromide,

90 grains daily, her average pulse rate was unchanged, being 24 in the morning and 24 at night.

The dose of Potassium Bromide having been raised to 120 grains daily for next 3 months, there was a slight fall, her average morning pulse rate being 82 and 83 at night.

The next month, when dose was raised to 150 grains daily, her average pulse rate was 82 in the morning and 83 at night, being the same as the average pulse rate for 3 previous months.

During the 11 months she was taking Potassium Bromide in varying doses from 45 to 150 grains daily, her average morning pulse rate was 83, and her average pulse rate at night was also 83.

The highest average pulse rate recorded for any month while taking Potassium Bromide was 88, being her average pulse rate during the 2nd month she was taking this drug in 60 grains daily.

<u>The effect of Borax followed by Potassium Bromide on the character of her fits.</u>

From her admission up to December 24, 1903, she had very severe fits, always falling, the tonic stage being severe, and during clonic stage she rolls about on the floor turning over and over; if not watched and prevented from doing so, as she is apt to knock against furniture, &c., she is comatosed for a considerable time after her fits.

During the time she was taking Borax her fits continued with equal severity as previously; she was just

as convulsed, and the succeeding comas as prolonged, in fact no difference was noticed in the character of her fits even when she was taking the larger doses.

While taking Potassium Bromide her fits continued the same until she was having 40 grains 3 times daily, when she was less convulsed and did not throw herself about so much during the clonic stage, and the succeeding coma was not so prolonged, showing that in this case the larger doses of Bromide of Potassium had more effect on her fits than Borax, the latter drug apparently having no beneficial effect whatever.

The effect of Borax followed by Potassium Bromide on her Mental Condition between fits.

In this case the effect produced by Borax on her mental state was unsatisfactory; she appeared to miss the soothing influence of Potassium Bromide, which drug she had been taking previously. During the administration of Borax she was irritable, sullen, peevish, often noisy and restless, lying about on the floor and if interfered with at once became very dangerous; cried frequently and was constantly dribbling, at times refused her food and did not sleep well at night.

When Potassium Bromide was substituted for Borax she soon became quieter, sat where she was placed, and if left alone did not give much trouble beyond an occasional outburst of excitement; she dribbled less and took her food and slept better at night, until Bromide of Potassium was given in 150 grains daily, when she became dull, heavy

and more easily provoked to violence, but beyond this she seemed to stand large doses of the drug well, showing that in this case her mental condition was in a much more comfortable state when taking Bromide of Potassium than when she was having Borax.

The effect of Borax followed by Potassium Bromide on her General Health.

While taking Borax her general health was fairly good; she did not show at any time that the drug was disagreeing with her, and it was only when it was raised to 150 grains daily that she at times refused her food, and then she was in a very unsettled mental condition, and I doubt if she refused her food because of the drug disagreeing with her and causing her bodily discomfort; when taking this dose she slept badly at night now and then.

While taking Potassium Bromide her bodily condition was much the same only that she took her food and slept better.

GENERAL SUMMARY of the treatment of Epileptic Insanity by Borax.

It seems evident to me that patients suffering from Epileptic Insanity are much more able to withstand the bad effects of Borax when taken for a considerable time than epileptics who are not insane.

Of the 6 cases I have treated with Borax for over a year, none showed any unpleasant symptom, nor were there any signs of the drug disagreeing with them until the dose was raised to 150 grains daily, except in the case

of "Arthur C," who developed Colitis shortly after the commencement of the Borax treatment; whether this was due to the Borax or not I cannot say, as there were some other cases of Colitis in the ward.

Gowers states that it is not well to begin with a larger dose than 15 grains, because in some patients it causes at first some diarrhoea, occasionally with dysenteric evacuations. (1)

Russell & Taylor treated 20 cases of Epilepsy with Borax, and out of that number no fewer than 14 showed some unpleasant symptom as nausea, vomiting, swelling of lips and boriacis, nausea and vomiting being the commonest symptoms; and they also state that a considerable number of the patients became emaciated and pulled down physically after they had been taking Borax for any length of time. (2)

None of the 6 cases I treated with Borax showed any symptoms of bodily disorder which could be traced to the drug, when it was given in moderate doses; none of these cases lost much weight, nor did their pulse rate or temperature lead one to suspect that the drug was disagreeing with them.

The most effectual doses of Borax for Therapeutic purposes.

In case of Arthur C. It was not until he was taking 20 grains three times daily that his fits began to diminish, and then for a time while still taking the dose to cease

(1) Gowers - "Epilepsy and other Chronic Convulsive Diseases" p.286. 1901. 2nd edition.
(2) Russell & Taylor - Lancet 1890. Vol.I. p.1061.

altogether, during the time he was being treated with Borax he had fewer fits when taking 20 grains 3 times daily than he had when taking higher or lower doses. His bodily weight also increased when taking this dose, and there was no indication in his temperature or pulse rate to contra-indicate the contiuance of the drug in this dose. His mental state was in the most satisfactory state when taking 20 grains 3 times daily, although he stood doses of 30 grains 3 times daily fairly well, yet the number of his fits during this dose were slightly increased; and doses of 40 and 50 grains he was quite unable to stand for any length of time, so the most effectual dose for this patient was 20 grains three times a day.

In the case of Simon M. It was not until the dose was raised to 20 grains 3 times daily that his fits diminished in a decided manner in number, and while taking this dose he had fewer fits than when dose was raised or when taking lower doses. His bodily weight, when he began to take 20 grains three times daily, at first fell, then increased. There was little change in his temperature or pulse rate during the time Borax was administered. This patient also took 30 grains 3 times a day well, but his fits at this dose gradually increased in number.

In case of Jane A. Her fits began to diminish in number when she was taking 10 grains 3 times daily, and diminished still more so when dose of Borax was raised to 20 grains 3 times daily, and for a time entirely ceased; when taking

30 grains 3 times daily still kept very low. Her bodily weight, when taking 20 grains 3 times daily, fell steadily each month, but increased when dose was raised to 30 grains 3 times daily; her temperature and pulse were not affected during this dose. When dose was raised to 40 grains 3 times daily, her mental condition prevented its usage at this dose for any length of time, so that in this case the most suitable dose was 30 grains 3 times daily.

In the case of Thomas S.P. Borax in this case did not diminish the number of his fits but the reverse, but by changing their character improved his mental condition considerably. The doses of the drug which agreed best with him was 30 grains 3 times daily, when taking this dose his bodily weight steadily increased, and although he was having a large number of fits they were of a slight character. When dose was raised to 40 grains 3 times daily he rapidly lost weight, and when taking 50 grains 3 times daily his mental condition prohibited the continuance of the drug in these doses, so that in this case 30 grains 3 times daily appeared the most suitable dose, his temperature and pulse rate being unaltered when taking this dose.

In the case of William P. The treatment of Borax in this case was very discouraging as his day fits steadily increased in number until he was taking 30 grains 3 times daily for 3 months, when his night fits began also to increase in number, and when dose was raised to 40 and 50 grains 3 times daily this influence was more marked.

The dose, when he was having the least number of fits, was 20 grains 3 times daily, but during this dose he lost in weight. Borax did not seem to benefit this patient in any way.

In the case of Mary H. This patient had fewer fits during the time she was taking Borax, 40 grains 3 times daily. Her bodily weight steadily fell when taking smaller doses, until the last month she was taking Borax, 30 grains 3 times daily, when it began to rise; although this dose seemed to benefit her fits by reducing them in number she could not take it for any length of time as her mental condition soon became highly unsatisfactory, and was still more so when she was taking 50 grains 3 times a day.

The most serviceable dose of Borax in Epileptic Insanity, judging from the patients I have treated with this drug, seems to be between 20 and 30 grains 3 times a day. They did not stand more than 30 grains well for any length of time, and less than 20 grains 3 times daily does not appear to control the fits so satisfactorily.

The Use of Borax in Epileptic Insanity.

The kind of Epilepsy in which Borax appears to be of the highest service are in cases of nocturnal Epilepsy. In the case of "Arthur C," whose Epilepsy was chiefly of a nocturnal nature, although he had a fair number of day fits, he benefited greatly from the administration of this drug, reducing his fits in one year to almost 2000 less than the previous year.

In the case of "Simon M," whose fits are markedly of a nocturnal nature, it caused a most satisfactory reduction.

In the case of "William P," who had a large number of his fits during the day, Borax had little effect in his case.

In the case of "Thomas S.P.," whose fits were chiefly of a nocturnal nature, Borax, although it did not diminish the number of his fits, changed their character in such a satisfactory manner as to greatly benefit his mental state.

In the case of "Jane A," who, since her admission, has had more night fits, Borax greatly reduced their number, doing so in one year from 266 the previous year to 31.

In the case of "Mary H," who had almost equal number of day and night fits since her admission, Borax had little effect.

In looking over these cases it shows that Borax has a marked action on Nocturnal Epilepsy, and is well worthy of a trial when Bromide of Potassium has failed.

What is the Action of Borax in Epilepsy?

I have been quite unable to find any references on this point.

If Epilepsy is due to a germ in the Intestinal Canal, Borax, acting as an antiseptic, may in this way benefit Epilepsy. But why should Borax have such a marked effect on Nocturnal Epilepsy? for if it did not act in this manner it should have the same effect on Diurnal Epilepsy.

Then again, if Borax by acting as an Intestinal Antiseptic benefits Epilepsy, then all gastro-intestinal antiseptics should act in a similar manner.

THE TREATMENT of EPILEPTIC INSANITY by BROMIDE of CAMPHOR followed by POTASSIUM BROMIDE.

Bromide of Camphor is a drug apparently little used in this country, and is mentioned by few writers on Epilepsy.

(1)

Gowers appears to have given it a trial, and states that: "Bromide of Camphor, which has been praised by Bourneville, can only be given in a dose of a few grains, this is insufficient to enable the Bromide to have any influence," and adds, "I have seen no benefit in any case in which I tried it."

I entered into correspondence with Dr Bourneville, who kindly explained to me the method which he adopted in the administration of this drug, which is as follows:-

During	the first	week	2 grains of Bromide of Camphor	given daily
"	second	"	3 " "	"
"	third	"	4 " "	"
"	fourth	"	5 " "	"
"	fifth	"	6 " "	"
"	sixth	"	7 " "	"
"	seventh	"	8 " "	"
"	eighth	"	7 " "	"
"	ninth	"	6 " "	"
"	tenth	"	5 " "	"
"	eleventh	"	4 " "	"
"	twelfth	"	3 " "	"
"	thirteenth	"	2 " "	"

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(1) Gowers - "Epilepsy and other Chronic Convulsive Diseases" p.273. 1901. 2nd edition.

Starting at 2 grains and increasing dose by 1 grain each subsequent week up to 8, then diminishing dose 1 grain per week to 2 grains, he recommended the administration of the drug in capsules, but I gave it on bread-and-butter, or in a teaspoon with jam or sugar.

The above doses were given in 1 grain at a time, not more.

I have treated the following 4 cases by Bromide of Camphor, followed in 3 by Potassium Bromide, and in 1 by Borax.

Case 1.

B.M.W. admitted April 3, 1903, aged 18 years.

Previous History - said to have been a bright and intelligent girl up to 5 years of age, when she had her first fit, after which her fits continued increasing in frequency and severity; lately she became violent, dirty in her habits and could not be managed at home.

Mental State - suffering from Dementia - has a dull, vacant expression, lost and confused and unable to answer questions, is sullen, irritable, peevish, and at times very violent, perverted in her habits, has to be dressed and undressed and masturbates. Physically well nourished, organs appear healthy.

Doses of Bromide of Camphor followed by Potassium Bromide given in this Case.

From Dec.24, 1903	to	Jan.24, 1904	No medicines were administered			
" Jan.24, 1904	"	March 6, "	B. of C.	2 to 8 grs	daily	increased by 1 gr per wk.
" March 6, "	"	April 16, "	"	8 to 2	"	diminished "
"April 16, "	"	May 28, "	"	2 to 8	"	increased "
" May 28, "	"	July 9, "	"	8 to 2	"	diminished "
" July 9, "	"	Aug.19, "	"	2 to 8	"	increased "
" Aug.19, "	"	Sept.30, "	"	8 to 2	"	diminished "
"Sept.30, "	"	Nov.11, "	"	2 to 8	"	increased "
" Nov.11, "	"	Dec.23, "	"	8 to 2	"	diminished "
" Dec.23, "	"	Feb. 4, 1905	"	2 to 8	"	increased "
" Feb.4, "	"	March 18, "	"	8 to 2	"	diminished "
"March 18, "	"	April 29, "	"	2 to 8	"	increased "
"April 29, "	"	June 9, "	"	8 to 2	"	diminished "
" June 9, "	"	July 22, "	"	2 to 8	"	increased
" July 22, "	"	Aug.22, "	Potassium Bromide	15	grains	three times daily
" Aug. 22, "	"	Sept.22, "	"	20	"	
"Sept.22, "	"	Oct.22, "	"	30	"	
" Oct.22, "	"	Nov.22, "	"	40	"	
" Nov.22, "	"	Dec.22, "	"	45	"	
" Dec.22, "	"	Jan.22, 1906	"	50	"	

The effect of Bromide of Camphor followed by Potassium Bromide on the number of her fits.

The table, giving her fits since admission, shows day and night convulsions per year as follows:-

	Day	Night	Total
in 1903 (from April 3rd)	23	209	232
" 1904	191	486	677
" 1905	96	458	554

From her admission April 3rd, 1903, to December 24, 1903, she was taking Potassium Bromide, 15 grains 3 times daily, and during that time had 23 day and 207 night fits, only having 2 night fits from December 24 to December 31, 1903. On November 20th, 1903, December 11th, 13th & 14th, 1903, she was for a time in the Status Epilepticus.

On January 24, 1904, Bromide of Camphor was given in doses of 1 grain bis die. The influence of this drug at once brought about a numerical alteration in her fits, those during the day increasing markedly as compared with previous year, and after taking this drug in varying doses for 3 months her night fits also began to increase in number, showing that whatever the dose of Bromide of Camphor was it had no power in reducing the number of her fits, and during the year 1904 she had the large total of 191 day and 486 night fits. On November, 21, 23 & 26, 1904, she was, for a time, in the Status Epilepticus. From January to June, 1905, her fits still kept at a high number, but when Potassium Bromide was administered as a substitute for Bromide of Camphor after the third month

there was a beneficial change, her day and night fits being reduced in number, and this reduction continued monthly with the increasing doses of Potassium Bromide until in January 1906 her fits ceased altogether, and none were recorded for that month.

TREATMENT of the STATUS EPILEPTICUS.

This seems a convenient place for a few remarks on the treatment of this complication of Epilepsy.

This patient, B.M.W., was in the status epilepticus on 7 different occasions while under observation for treatment with Bromide of Camphor, the first 4 of these occurred while she was taking Potassium Bromide, 15 grains 3 times daily, and the other 3 when she had been taking Bromide of Camphor in varying doses for 11 months.

The method of treatment adopted was that advocated by Brown Séquard (1) who says, the prompt and continued use of anaesthetics in cases of status epilepticus (ether, chloroform) may stop the tendency to the recurrence of fits. The condition of the tongue must then be watched carefully. If, as is usual, the fits are very violent, this organ falls over the larynx, and increases the state of Asphyxia which contributes to the return of convulsions. The tongue is to be drawn forward and any accumulation of frothy or bloody mucus in the throat must be wiped out. Anaesthetics have some power of curtailing if not stopping at once the tendency to a return of fits.

A short summary of the notes taken on the 7 occasions

(1) Brown Séquard - Quain's Dictionary of Medicine. art. "Epilepsy" p.610. 1895. 2nd edition.

when this patient was in the status epilepticus is as follows:-

On every occasion a soap and water enema was given and an hour was allowed to elapse from the commencement of the status before chloroform was administered. I allowed this time to elapse because sometimes by simply giving an enema, which is attended by satisfactory results, the fits cease.

The patient was placed on her side and kept there during the administration of chloroform. Tongue was drawn forward by forceps and throat cleared of mucus by throat sponges.

Chloroform was administered on each occasion for 1 hour.

1. November 20, 1903, at 10 p.m. was in status epilepticus. Temperature 99. Pulse 130. At 11 p.m. chloroform was administered for 1 hour, fits ceased at once and did not recur.
2. December 11, 1903, at 8.30 p.m. was in status epilepticus. At 9.30 p.m. chloroform was administered for 1 hour. She had one fit 20 minutes after the commencement of chloroform, after that fits ceased. Temperature 99.6. Pulse 120.
3. December 13, 1903, was in status epilepticus at 7.30 p.m. At 8.30 p.m. chloroform administered for 1 hour, fits at once ceased. Temperature 99.4. Pulse 144.
4. December 14, 1903, at 8.15 p.m. was in status epilepticus. Temperature 100.8. Pulse 148. Chloroform commenced at 9.15 p.m. and continued for 1 hour, during that time she had 5 fits each being less severe, and finally ceased altogether.

5. November 21, 1904. At 8 p.m. she was in the status epilepticus. At 9 the chloroform given and continued for 1 hour. Temperature 99.4. Pulse 150. Fits ceased at once and did not recur.

6. November 23, 1904. At 3 p.m. she was in the status epilepticus. At 4 p.m.the chloroform administered. Temperature normal. Pulse 120. Fits ceased at once.

7. November 26, 1904. At 8 a.m. was in the status epilepticus. At 9 a.m. chloroform administered for 1 hour. Temperature normal. Pulse 90. Fits ceased at once.

On all these occasions, except No.4, I did not thoroughly anaesthetise the patient, only giving chloroform at intervals, but on the 4th occasion the fits did not at once cease, and I at one time had the patient completely under the influence of the anaesthetic for 15 minutes, after that giving it at intervals.

In this patient, when in the status epilepticus, chloroform acted as an almost certain remedy, causing on 7 occasions complete cessation of fits.

In other two cases of status epilepticus I applied the same methods as used in above case, giving chlororform for 1 hour to each patient, but the fits did not cease either in number or severity, continuing unchanged to the end, both patients dying in the status epilepticus.

<u>The effect of Bromide of Camphor followed by Potassium Bromide on her Temperature.</u>

The following table shows her average morning and evening temperature, taken during the administration of Bromide of Camphor followed by Potassium Bromide, and

doses given, per month.

Doses of Bromide of Camphor - each figure representing dose per week during month.	Average Temperature per month.	
	M	N
Average temperature when no medicines were taken and last 2 weeks Bromide of Camphor in 2 & 3 grain doses	97.3	97.7
4.5.6.7.grains	97.2	97.4
8.7.6.5 "	97	97.5
4.3.2.3.4 "	96.8	97.5
5.6.7.8 "	96.7	97.7
7.6.5.4 "	97.5	97.4
3.2.3.4.5 "	97.2	97.8
6.7.8.7 "	97.6	98
6.5.4.3.2 "	97.3	97.9
3.4.5.6 "	97.3	97.6
7.8.7.6 "	96.9	97.1
5.4.3.2.3 "	97.6	97.7
4.5.6.7 "	97.3	97.3
8.7.6.5 "	97.4	97.2
4.3.2.3 "	97.2	97.5
4.5.6.7.8 "	97.5	97.5
7.6.5.4 "	97	97.2
3.2.3.4 "	97.2	97.1
5.6.7.8 "	97.1	97.5
Pot.Brom.dose daily per month		
45 grains	97.3	97.5
60 "	97.2	97
90 "	97.4	96.9
120 "	97.2	97
135 "	97	97.6
150 "	97	97.8

The effect of Bromide of Camphor followed by Potassium Bromide on her Temperature.

During the month when, for first fortnight, she was taking no medicines, and last 2 weeks 2 grains, and then 3 grains daily of Bromide of Camphor, her average morning temperature was 97.3 and 97.7 in the evening.

The next month, when the dose of Bromide of Camphor was increased weekly from 4 to 7 grains, her average temperature fell slightly in the morning, being 97.2, and more noticeably at night, being 97.4.

The following 3 months, while doses of Bromide of

Camphor were reduced by 1 grain weekly from 8 to 2, and again increased from 2 to 8, and then reduced to 4 by 1 grain weekly, her morning average temperature for the 3 months fell to 96.8, and her evening temperature rose slightly, being 97.6.

During the next 3 months, while taking doses diminishing from 7 to 4 grains of Bromide of Camphor, then the next month from 3 to 2, and rising to 5 grains, and during the third month rising from 6 to 8, and then reduced to 7 again, her average morning temperature for the 3 months rose to 97.4, and there was a slight fall in her evening temperature to 97.4 as compared with the previous 3 months.

The next three months the dose of Bromide of Camphor was reduced from 6 to 2 grains the first month, then raised from 3 to 6 the second, and raised from 7 to 8, then reduced to 6 grains the third month, her average morning temperature for the 3 months fell a little, being 97.1, in the evening being much the same 97.5, as compared with previous 3 months.

During the following 3 months, while taking doses of Bromide of Camphor reduced from 5 to 2, and then raised to 3 grains the first month, then raised from 4 to 7 the second month, and after being raised to 8 reduced to 5 grains the third month, her average morning temperature for the 3 months was slightly raised, being 97.4, and in the evening there was little change, being 97.4, as compared with previous 3 months.

The next 3 months the doses of Bromide of Camphor being reduced from 4 to 2, and then raised to 3 grains the

first month, then raised from 4 to 8 grains the second month, and reduced from 7 to 4 grains the third month, her average morning temperature for the 3 months fell slightly, being 97.2, her evening temperature remaining unchanged, 97.4, as compared with that of previous 3 months.

The last 2 months her average morning temperature was practically the same, being 97.1, and in the evening 97.3, being also little changed (as compared with pre-vious 3 months) while taking Bromide of Camphor in doses reduced from 3 to 2, and then raised to 4 grains the first month, and then raised from 5 to 8 grains the second month.

During the 19 months she was taking Bromide of Camphor in doses raised from 2 to 8 grains by 1 grain per week, and then reduced from 8 to 2 grains by 1 grain a week, her average morning temperature was 97.2 and her average evening temperature 97.5.

During these 19 months the highest temperature attain-ed was 97.9, being her average evening temperature during the 9th month, when taking Bromide of Camphor in doses reduced from 6 to 2 grains by 1 grain per week.

During the first month that Bromide of Potassium was substituted for Bromide of Camphor there was little change in her average temperature, being 97.3 in the morning and 97.5 at night, the dose of Bromide of Potassium being 45 grains daily. The next month, when taking Pot-assium Bromide, 60 grains daily, there was a slight fall in her morning average temperature, which was 97.2, and a more decided fall in her evening temperature, being 97. The following month there was a slight rise in her average

morning temperature, being 97.4, her evening being practically unchanged, 96.9, when taking Potassium Bromide, 90 grains daily. The next month her average morning temperature fell slightly, being 97.2, while her evening temperature rose a little to 97 when taking Potassium Bromide, 120 grains daily. When taking 135 grains of Bromide of Potassium daily next month, her average temperature fell again to 97, and there was a more marked rise in her evening temperature to 97.6, and the last month, when taking 150 grains of Potassium Bromide daily, her morning temperature was unchanged while her evening temperature rose to 97.8.

During the 6 months she was taking Potassium Bromide in doses varying from 45 to 150 grains daily, her average morning temperature was 97.1, and her average evening temperature was 97.3, and while taking Potassium Bromide, 150 grains daily, her average evening temperature was the highest recorded for the 6 months, being 97.8.

<u>The effect of Bromide of Camphor followed by Potassium Bromide on her Pulse Rate.</u>

The following table shows her average pulse rate, counted morning and evening, during the administration of Bromide of Camphor, followed by Potassium Bromide, and doses given:-

Doses of Brom.of Camphor - each fig. representing dose per week during month.	Average Pulse Rate per month		
	Average pulse rate when no medicines were given and last 2 weeks when Brom. of Camphor given 2 & 3 grain doses	M	N
4.5.6.7 grains		87	84
8.7.6.5 "		90	88
4.3.2.3.4 "		90	88
5.6.7.8 "		87	85
7.6.5.4 "		82	89
3.2.3.4.5 "		88	87
6.7.8.7 "		85	84
6.5.4.3.2 "		88	86
3.4.5.6 "		86	83
7.8.7.6 "		81	83
5.4.3.2.3 "		83	83
4.5.6.7 "		84	85
7.8.6.5 "		82	84
4.3.2.3 "		84	82
4.5.6.7.8 "		79	81
7.6.5.4 "		83	82
3.2.3.4 "		85	83
5.6.7.8 "		82	82
		83	82
Pot.Brom.dose daily			
45 grains		82	84
60 "		83	83
90 "		84	85
120 "		85	84
135 "		82	82
150 "		83	83

The effect of Bromide of Camphor followed by Potassium Bromide on her Pulse Rate.

During the month when, for first fortnight, she was taking no medicines, and last 2 weeks Bromide of Camphor in 2 and 3 grain doses, her average morning pulse rate was 87 and 84 at night.

The next 3 months, while taking Bromide of Camphor in doses raised from 4 to 7 grains the first month, then raised to 8 and reduced to 5 the second month, and reduced from 4 to 2 and raised from 2 to 4 the third month, her average morning pulse rate was 89 and 87 in the evening. The following 3 months, when taking Bromide of Camphor in doses rising from 5 to 8 grains first month, reduced from

7 to 4 the second month, and reduced from 3 to 2 and then raised to 5 grains the third month, her average morning pulse rate fell to 84 and to 86 at night as compared with previous 3 months. The next 3 months, while taking Bromide of Camphor in doses rising from 6 to 8 and then reduced to 7 grains the first month, then reduced from 6 to 2 grains the second month, and raised from 3 to 6 grains the third month, her average morning pulse rate was little altered, being 85, while her evening was 84, being slightly lower than previous 3 months. The following 3 months, when taking Bromide of Camphor in doses rising from 7 to 8 and reduced to 6 grains the first month, then reduced from 5 to 2 and raised to 3 grains the second month, and raised from 4 to 7 grains the third month, her average morning pulse rate fell to 83, while her evening pulse rate rose to 87 as compared with previous 3 months. The next 3 months, while taking Bromide of Camphor in doses reduced from 8 to 5 grains the first month, and reduced from 4 to 2 and raised to 3 grains the second month, and raised from 4 to 8 grains the third month, her average pulse rate fell to 82 in the morning and 81 at night as compared with previous 3 months.

The last 3 months she was taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains the second month, and raised from 5 to 8 the last month, her average pulse rates were practically unchanged, being 83 in the morning and 82 at night.

During the 19 months she was taking Bromide of Camphor in varying doses from 2 to 8 grains, then reduced per week by 1 grain to 2 grains, her average pulse rate in the morning was 84, and 84 in the evening.

During the 19 months while taking Bromide of Camphor the highest average pulse rate recorded for 1 month was 90, being her average morning pulse rate during the second and third months while taking Bromide of Camphor in doses rising from 4 to 7 grains the second month, and doses raised to 8 and reduced to 5 grains the third month.

During the first month Potassium Bromide was substituted for Bromide of Camphor in 45 grain doses daily, her average morning pulse rate was 82, and 84 at night. The next month, while taking Potassium Bromide, 60 grains daily, there was little alteration, her average morning pulse rate being 83, and in the evening 83. While taking Potassium Bromide, 90 grains daily, the next month, there was a slight rise in her average pulse rates, being 84 in the morning and 85 at night. The next month, when taking 120 grains daily of Potassium Bromide her average morning pulse rate was 85, and in the evening 84, there being little change from the previous month.

When taking 135 grains of Bromide of Potassium daily, her average pulse rate fell to 82 in the morning and to 82 at night, and there was a slight rise the last month, when taking Potassium Bromide, 150 grains daily, her average pulse rate being 83 in the morning and 83 at night.

During the 6 months she was taking Potassium Bromide in varying doses from 45 to 150 grains daily, her average

morning pulse rate was 83, and her average evening pulse rate was 83.

During the 6 months she was taking Potassium Bromide her highest average pulse rate for any month was her evening pulse rate when taking 90 grains daily, being 85, and her morning pulse rate during the month she was taking 120 grains daily, being also 85.

The effect of Bromide of Camphor followed by Potassium Bromide on her Bodily Weight.

The following table shows her bodily weight, ascertained per month, and doses of Bromide of Camphor followed by Potassium Bromide:-

Doses of Brom.of Camphor - each fig. representing dose per week during month.	Weight per month in lbs.
	Bodily weight when taking no medicines, and last 2 weeks when Brom.of Camphor given 2 & 3 grain doses — 735
4.5.6.7 grains	746¾
8.7.6.5 "	761½
4.3.2.3.4 "	746¾
5.6.7.8 "	744
7.6.5.4 "	753¾
3.2.3.4.5 "	748½
6.7.8.7 "	759¾
6.5.4.3.2 "	755½
3.4.5.6 "	761¼
7.8.7.6 "	753¼
5.4.3.2.3 "	723¼
4.5.6.7 "	753½
8.7.6.5. "	768¼
4.3.2.3 "	745¼
4.5.6.7.8 "	758¾
7.6.5.4 "	793¾
3.2.3.4 "	761
5.6.7.8	765
Pot.Brom.dose daily	
45 grains	761½
60 "	752¼
90 "	771¼
120 "	779
135 "	785¼
150 "	826

The effect of Bromide of Camphor followed by Potassium Bromide on her Bodily Weight.

During the month when for the first fortnight she was taking no medicines and last 2 weeks Bromide of Camphor in 2 and 3 grain doses daily her weight was 735 lbs.

The next 3 months while taking Bromide of Camphor in doses rising from 4 to 7 grains first month, then reduced from 8 to 5 the second month and reduced from 4 to 2 then raised to 4 grains the third month, her average weight for the three months being 749 lbs, being an increase of 14 lbs on the previous month.

The following 3 months when taking Bromide of Camphor in doses rising from 5 to 8 grains the first month, then reduced from 7 to 4 grains second month and reduced from 3 to 2 and then raised to 5 grains the third month, her average weight remained unchanged practically, being 748 lbs.

The next 3 months her average weight was increased by 10 lbs on the previous 3 months, being 758 lbs, while she was taking Bromide of Camphor in doses rising from 6 to 8 and then reduced to 7 grains the first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 grains the third month.

The following 3 months while taking Bromide of Camphor in doses rising from 7 to 8 and then reduced to 6 grains the first month, then reduced from 5 to 2 and then raised to 3 grains second month and raised from 4 to 7 grains third month, her average weight was 743 lbs, being only 15 lbs less than previous 3 months.

The next 3 months, while taking Bromide of Camphor in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains the second month, and raised from 4 to 8 grains the third month, there was a gain of 14 lbs on the previous 3 months, her average weight being 757 lbs.

The following 3 months when taking Bromide of Camphor in doses reduced from 7 to 4 grains the first month, then reduced from 3 to 2 and raised to 4 grains second month, and raised finally from 5 to 8 grains the last month, her average weight was 773 lbs, being a gain of 16 lbs on the previous 3 months.

During the 19 months she was taking Bromide of Camphor in varying doses, increased by 1 grain per week from 2 to 8 grains, and then reduced by 1 grain per week to 2 grains, her average weight was 759 lbs, and the highest weight attained for any month was 793¾ lbs, being her weight during the 17th month in which she was taking Bromide of Camphor in doses reduced from 7 to 4 grains.

The first month she was taking Potassium Bromide, 45 grains daily, her weight was 761¼ lbs, the next month, when taking Potassium Bromide, 60 grains daily, it fell 9 lbs, being 752¼ lbs; but the following month, when taking Potassium Bromide, 90 grains daily, it was 771¼ lbs, being an increase of 19 lbs on the previous month.

During the month when she was taking Potassium Bromide, 120 grains daily, her weight increased 8 lbs, being 779 lbs.

The next month her weight still gained another 6¼ lbs, her weight being 785¼ lbs while taking Potassium

Bromide, 135 grains daily.

The last month, when taking Potassium Bromide, 150 grains daily, she gained 40¾ lbs, her weight being 826 lbs; this was also the highest weight recorded during the 6 months she was taking Potassium Bromide in varying doses from 45 to 150 grains daily.

During the 6 months she was taking Potassium Bromide her average weight was 779 lbs.

The effect of Bromide of Camphor followed by Potassium Bromide on the Character of her fits.

From her admission in April 1903 up to December 1903, while taking Potassium Bromide, 45 grains daily, she had severe fits, all of the Grand Mal type. She always fell; the tonic and clonic stages being severe, and was comatosed for some time after. While taking Bromide of Camphor for 19 months the number of her day fits increased considerably, as did also her night attacks; the character of these fits was more severe than previous to the Bromide of Camphor treatment, the clonic convulsions were more severe, and this stage was prolonged, and she was comatosed for a longer period after.

When Bromide of Potassium was substituted, during the last 6 months a marked improvement was soon evidenced, and this improvement was even more pronounced as larger doses of Bromide of Potassium were given. The tonic spasm was shorter, the clonic convulsions markedly less severe, and the state of coma was considerably shortened, showing the beneficial influence on the character of her fits

which Bromide of Potassium held in contrast to Bromide of Camphor.

The effect of Bromide of Camphor followed by Bromide of Potassium on her Mental Condition between the fits.

From her admission in April 1903 to December 1903, her mental condition was as follows:- She was irritable, sullen and peevish, and if interfered with prone to violence, but if left alone was, as a rule, fairly quiet. During the 19 months she was taking Bromide of Camphor her mental state could not have been more unsatisfactory. She was so irritable that if anyone spoke to her she burst forth into a volume of abuse; if a nurse tried to brush her hair, &c., she would slap her face, spit at her, or clutch hold of her dress and attempt to tear it; she was the pest of the ward during those 19 months, and frequently had to be put to bed on account of her violence. When Bromide of Potassium was substituted for Bromide of Camphor, her mental condition soon altered and she became quiet and docile if left alone, and even did some light work, and it was quite a pleasant rest to those who had to deal with her after the turmoils of the previous 19 months.

The effect of Bromide of Camphor followed by Potassium Bromide on her General Health.

During the 19 months she was taking Bromide of Camphor her general health was not good; she lost flesh, became a dirty, sallow colour, especially marked in her

face; was, at times, shaky on her legs, and did not take her food well, frequently having to be given extra diet. When this drug was stopped and Bromide of Potassium given in its place an improvement in her general health soon took place. She gradually increased in weight, her cheeks filled out, and she lost the sallow look on her face, and she now has a good colour and looks a fairly healthy girl.

She stood the larger doses of Bromide of Potassium very well, and was able to take 50 grains thrice daily for a month, showing no signs of Bromide poisoning, and increasing 40 lbs during the month.

Case 2.

S.A.T. admitted November 14, 1899, aged 29 years.

Previous History - Suffered from Epilepsy since 3 years of age - ill-treated and neglected in youth; unable to work on account of fits; lately liable to outbursts of Mania with violence.

Family History - Brother insane, father and mother drunkards; no history of Epilepsy or Phthisis.

Mental State - suffering from Dementia, weak-minded and simple and very deficient in useful initiative and self-guiding ability, has frequent attacks of excitement when she becomes restless, noisy, quarrelsome and violent.

Doses of Bromide of Camphor followed by Potassium Bromide given in this Case.

From Dec.24,1903	to	Jan.24.1904				No medicines were administered	
" Jan.24,1904	"March 6,	"	B. of C.	2 to 8	grs.	daily	increased by 1 gr.per wk
" March 6,	" " April 16,	"	"	8 to 2	"		diminished "
" April 16,	" " May 28,	"	"	2 to 8	"		increased "
" May 28,	" " July 9,	"	"	8 to 2	"		diminished "
" July 9,	" " Aug.19,	"	"	2 to 8	"		increased "
" Aug.19,	" "Sept.30,	"	"	8 to 2	"		diminished "
"Sept.30,	" " Nov.11,	"	"	2 to 8	"		increased "
" Nov.11,	" " Dec.23,	"	"	8 to 2	"		diminished "
" Dec.23,	" " Feb. 4,1905		"	2 to 8	"		increased "
" Feb.4, 1905	"March 18,	"	"	8 to 2	"		diminished "
"March 18,	" "April 29,	"	"	2 to 8	"		increased "
" April 29,	" " June 9,	"	"	8 to 2	"		diminished "
" June 9,	" " July 22,	"	"	2 to 8	"		increased "
" July 22,	" " Aug.22,	"	Potassium Bromide	15	"		three times daily
" Aug.22,	" "Sept.22,	"	"	20	"		"
"Sept.22,	" " Oct.22,	"	"	30	"		"
" Oct.22,	" " Nov.22,	"	"	40	"		"
" Nov.22,	" " Dec.22,	"	"	45	"		"
" Dec.22,	" " Jan.22,1906		"	50	"		"

SARAH A. T.

Number of day and night fits since her admission.

	Jan. d. n.	Feb. d. n.	Mar. d. n.	April d. n.	May d. n.	June d. n.	July d. n.	Aug. d. n.	Sep. d. n.	Oct. d. n.	Nov. d. n.	Dec. d. n.	Total of d. n.	Total.
1899.											3. -	6. 1.	9. 1.	10.
1900.	18. 5.	11. 5.	8. 3.	14. 2.	7. 1.	4. 4.	3. 4.	4. 2.	9. 3.	6. 7.	5. 9.	9. 5.	98. 50.	148.
1901.	11. 4.	3. 11.	16. 7.	11. 4.	2. 9.	3. 7.	13. 8.	14. 1.	7. 11.	7. 5.	4. 10.	13. 8.	104. 85.	189.
1902.	9. 8.	45. 10.	69. 15.	36. 8.	11. 6.	13. 9.	23. 1.	10. 7.	9. 1.	6. 2.	3. 3.	55. 4.	288. 74.	362.
1903.	11. 4.	25. 9.	18. 5.	18. 2.	15. 3.	10. 2.	8. 4.	6. 2.	8. 2.	19. 5.	6. 5.	3. 1. all med. stopped.	147. 44.	191.
1904.	92. 29. B. of C. 2-3 gr.	17. 4. B. of C. 4-7 gr.	19. 6. B. of C. 2-5 gr.	25. 7. B. of C. 4-4 gr.	13. 3. B. of C. 5-8 gr.	18. 2. B. of C. 7-4 gr.	21. 7. B. of C. 3-5 gr.	29. 9. B. of C. 6-7 gr.	28. 10. B. of C. 6-2 gr.	9. 2. B. of C. 3-6 gr.	6. 4. B. of C. 7-6 gr.	37. 27. B. of C. 5-3 gr.	314. 110.	424.
1905.	19. 1. B. of C. 4-7 gr.	5. 0. B. of C. 8-5 gr.	4. 1. B. of C. 4-3 gr.	13. 7. B. of C. 4-8 gr.	16. 8. B. of C. 7-4 gr.	13. 8. B. of C. 3-4 gr.	8. 3. Pot B. 15 gr.	1. 0. Pot. B. 20 gr.	15. 1. Pot. B. 30 gr.	6. 6. Pot. B. 40 gr.	13. 2. Pot. B. 45 gr.	3. 8. Pot. B. 50 gr.	116. 45.	161.
1906.	0. 0. Pot. B. 50 gr.													

Doses of Brom. of Cam. raised from 2 to 8 grs. by 1 gr. per week then reduced from 8 to 2 grs. by 1 gr. per week.

All doses given 1 grain at a time.

Bromide of Potassium given three times daily after food.

The effect of Bromide of Camphor followed by Potassium Bromide on the number of her fits.

The table giving her fits since admission shew Day and Night attacks per year as follows:-

	Day	Night	Total
in 1899 (from November 14)	9	1	10
" 1900	98	50	148
" 1901	104	85	189
" 1902	288	74	362
" 1903	147	44	191
" 1904	314	110	424
" 1905	116	45	161

From her admission in November 1899 up to December 24 1903, while taking Potassium Bromide, 45 grains daily, she had 646 day and 253 night fits.

On January 24, 1904, the treatment by Bromide of Camphor was commenced and there was at once a marked increase in the number of her day fits which continued at a high rate, except during October and November, throughout the year 1904, the total of day fits for that year being 314, which was 167 more than in 1903.

In the year 1904 her night fits also increased in number, but not to same extent as the day fits, under the influence of Bromide of Camphor; they were 66 more in number than in the previous year, 1903. During this year the total of both day and night fits were higher than any other year during her stay in the Asylum.

The next 6 months, from January 1905 to July 22 1905, Bromide of Camphor was still continued, and her fits

diminished markedly during the night, and to a less extent during the day, the total for the 6 months being 77 day and 28 night fits, this was a decided improvement on previous year.

The last 6 months in 1905, from July 22 to January 22 1906, while taking Potassium Bromide the diminution of both day and night fits was still more marked, being 39 day and 17 night fits; during the month of January she had no fits while taking Potassium Bromide, 150 grains daily.

The effect of Bromide of Camphor followed by Potassium Bromide on her Bodily Weight.

The following table gives her bodily weight in lbs per month, while taking Bromide of Camphor followed by Potassium Bromide, and doses administered:-

s of Brom.of Cam. fig.representing per wk during month	Weight when no medicine taken and Brom. of Cam.given last 2 wks in 2 & 3 grain doses	Weight in lbs per month.
.5.6.7 grains		800
.7.6.5 "		825½
.3.2.3.4 "		828½
.6.7.8 "		836¼
.6.5.4 "		849¾
.2.3.4.5 "		833¾
.7.8.7 "		842¾
.5.4.3.2 "		823
.4.5.6 "		839¾
.8.7.6 "		847½
.4.3.2.3 "		876½
.5.6.7 "		845¾
.7.6.5 "		856¾
.3.2.3 "		961¼
.5.6.7.8 "		876¾
.6.5.4 "		870½
.2.3.4 "		864¾
.6.7.8 "		841½
		819½
.Brom.dose daily er month		
5 grains		818¾
0 "		833½
0 "		880
0 "		873¾
5 "		870
0 "		843¾

The effect of Bromide of Camphor followed by Potassium Bromide on her Bodily Weight.

During the month when, for the first fortnight, she was taking no medicine, and last 2 weeks Bromide of Camphor in 2 and 3 grain doses, her weight was 800 lbs.

The next 3 months, while taking Bromide of Camphor in doses rising from 4 to 7 grains first month, then reduced from 8 to 5 grains second month, and reduced from 4 to 2 and then raised to 4 grains third month, her average weight was 826 lbs, being an increase of 26 lbs on the previous month.

The following 3 months, while taking Bromide of Camphor in doses rising from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and then raised to 5 grains the third month, her average weight was 842 lbs, being a gain of 16 lbs on the previ ous 3 months.

The next 3 months, while taking Bromide of Camphor in doses rising from 6 to 8 and then reduced to 7 first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 the third month, her average weight was 836 lbs, being a loss of only 6 lbs as compared with previous 3 months.

The following 3 months her average weight was 859 lbs, being an increase of 23 lbs on previous 3 months, while taking Bromide of Camphor in doses raised from 7 to 8 and then reduced to 6 grains first month, then reduced from 5 to 2 and raised to 3 grains second month, and raised from 4 to 7 grains third month.

The next 3 months, while taking Bromide of Camphor in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 grains and then raised to 3 grains second month, and raised from 4 to 8 grains third month, her average weight was 869 lbs, being a gain of 10 lbs on previous 3 months.

The last 3 months while taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains second month, and raised finally from 5 to 8 grains, her average weight was 841 lbs, being a loss of 28 lbs as compared with previous 3 months.

During the 19 months she was taking Bromide of Camphor, her average weight was 844 lbs, and the highest weight recorded on 2 occasions was 876 lbs, being weights during the 11th and 15th months, while taking Bromide of Camphor in doses raised from 7 to 8 and then reduced to 6 grains during 11th month, and in doses reduced from 4 to 2 and raised to 3 grains the 15th month.

The first month she was taking Potassium Bromide, 45 grains daily, her weight was 818¾ lbs. The next month her weight rose to 833½ lbs while taking Potassium Bromide, 60 grains daily, being an increase of 14 lbs on previous month.

The next month, while taking Potassium Bromide, 90 grains daily, she gained 46½ lbs on previous month, her weight being 880 lbs.

When taking 120 grains of Potassium Bromide daily the next month, there was little alteration, being a

difference of 6¼ lbs on previous month, her weight being 873¾ lbs.

The next month, when taking Potassium Bromide, 135 grains daily, she only lost 3¾ lbs as compared with previous month, her weight being 870 lbs. And the last month, when taking Potassium Bromide, 150 grains daily, she lost 26¼ lbs, her weight being 843¾ lbs.

During the 6 months she was taking Potassium Bromide in varying doses from 45 to 150 grains daily her average weight was 831 lbs, and her highest weight recorded during this time was 880 lbs, being weight during month when taking Potassium Bromide, 90 grains daily.

The effect of Bromide of Camphor followed by Potassium Bromide on her Temperature.

The following table shows her average morning and evening temperature, taken during the administration of Bromide of Camphor followed by Potassium Bromide, and doses given per month:-

Doses of Bromide of Camphor - each figure representing dose per week during month.	Average temperature when no medicines taken, and last 2 weeks when Bromide of Camphor given in 2 & 3 grain doses	Average Temperature per month. M	N
4.5.6.7.grains		97.4	97.3
8.7.6.5 "		97.3	97.3
4.3.2.3.4 "		97.3	97.3
5.6.7.8 "		97.1	97.2
7.6.5.4 "		97.1	97
3.2.3.4.5 "		97	97.1
6.7.8.7 "		97.6	97.3
6.5.4.3.2 "		97.6	97.6
3.4.5.6 "		97.4	97.5
7.8.7.6 "		97.4	97.3
5.4.3.2.3 "		97.1	97
4.5.6.7 "		97.4	97.5
8.7.6.5 "		97.4	97.4
4.3.2.3 "		97.4	97.3
		97.4	97.5

Brom.of Cam.&c.	(contd.)	Average Temperature per month	
		M	N
4.5.6.7.8 grains		97.7	97.6
7.6.5.4 "		97	97.1
3.2.3.4 "		97.1	97.2
5.6.7.8 "		97.3	97.7
Pot.Brom.dose daily per month.			
45 grains		97.1	97.2
60 "		97.1	97
90 "		97	96.8
120 "		96.9	97
135 "		96.6	96.6
150 "		97	97.2

The effect of Bromide of Camphor followed by Potassium Bromide on her Temperature.

During the month when, for first fortnight, no medicines were taken, and last 2 weeks Bromide of Camphor given in 2 and then 3 grain doses, her average morning temperature was 97.4 and in the evening 97.3.

During the next 3 months, while taking Bromide of Camphor in doses rising from 4 to 7 grains first month, then reduced from 8 to 5 grains second month, and reduced from 4 to 2 and raised to 4 grains the third month, her average temperature was 97.2 in the morning and 97.2 at night, showing a slight fall as compared with previous month. The next 3 months, while taking Bromide of Camphor in doses rising from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and then raised to 5 grains the third month, her average temperature was 97.2 in the morning and 97.1 at night, being little changed from previous 3 months.

The following 3 months her average temperature was 97.4 in the morning and 97.4 at night, while taking Bromide

of Camphor in doses rising from 6 to 8 and reduced to 7 grains first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 grains the third month, showing a slight rise in both morning and evening temperature as compared with previous 3 months.

The next 3 months while taking Bromide of Camphor in doses rising from 7 to 8 and reduced to 6 grains first month, then reduced from 5 to 2 and raised to 3 grains second month, and raised from 4 to 7 grains third month, her average temperature was 97.2 in the morning and 97.3 at night, there being a slight fall as compared with previous 3 months.

The following 3 months, while taking Bromide of Camphor in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains second month, and raised from 4 to 8 grains third month, her average temperature was 97.5 in the morning and 97.4 at night, showing a slight rise as compared with previous 3 months.

The last 3 months, while taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains second month, and finally raised from 5 to 8 grains the third month, her average morning temperature fell to 97.1, and there was also a fall in her average evening temperature, but to a less extent, being 97.3.

During the 19 months she was taking Bromide of Camphor in doses raised from 2 to 8 grains and then reduced from 8 to 2 grains by 1 grain per week, her average morning temperature was 97.3, and her average evening temperature

was also 97.3.

The highest temperature recorded during the 19 months was 97.7, being her average evening temperature during the 19th month when dose of Bromide of Camphor was raised from 5 to 8 grains; and the same temperature was also recorded during 16th month, when her average morning temperature for that month was 97.7 when she was taking Bromide of Camphor in doses rising from 4 to 8 grains by 1 grain per week.

During the first month, when she was taking Potassium Bromide, 45 grains daily, her average morning temperature was 97.1, and 97.2 in the evening.

The next month, when taking Potassium Bromide, 60 grains daily, her average morning temperature remained unchanged, being 97.1, while her evening temperature fell to 97.

While taking Potassium Bromide, 90 grains daily, the following month, her average temperature fell to 97, and her evening temperature also fell further to 96.8. The next month, when taking Potassium Bromide, 120 grains daily, her average morning temperature fell slightly, being 96.9 while there was a slight rise in her evening temperature, being 97. While taking Bromide of Potassium, 135 grains daily the next month, her average morning and evening temperatures both fell, being 96.6 in the morning and 96.6 at night.

The last month, when taking Potassium Bromide, 150 grains daily, there was a rise in both average temperatures, being 97 in the morning and 97.2 at night.

During the 6 months she was taking Potassium Bromide in varying doses from 45 to 150 grains daily, her average morning temperature was 96.9, and her average evening temperature 96.9.

The highest temperature recorded was 97.2, being her average evening temperature when taking Potassium Bromide, 45 grains daily, and her average evening temperature, when taking the same drug, 150 grains daily.

The effect of Bromide of Camphor followed by Potassium Bromide on her Pulse Rate.

The following table gives her average pulse rate per month, counted night and morning, while taking Bromide of Camphor followed by Potassium Bromide, and doses administered:-

Doses of Brom.of Cam. each fig.representing dose per week during month.	Average Pulse Rate when no medicines taken, & last 2 weeks Brom.of Cam.given in 2 & 3 grain doses	M	N
		78	76
4.5.6.7 grains		81	83
8.7.6.5 "		83	80
4.3.2.3.4 "		81	79
5.6.7.8 "		80	80
7.6.5.4 "		76	77
3.2.3.4.5 "		81	79
6.7.8.7 "		81	80
6.5.4.3.2 "		79	78
3.4.5.6 "		79	77
7.8.7.6 "		78	79
5.4.3.2.3 "		79	82
4.5.6.7 "		82	82
8.7.6.5 "		81	81
4.3.2.3 "		80	80
4.5.6.7.8 "		81	80
7.6.5.4 "		80	81
3.2.3.4 "		81	80
5.6.7.8 "		81	82
Pot.Brom.dose daily per month.			
45 grains		83	83
60 "		81	83
90 "		83	82
120 "		82	83
135 "		80	80
150 "		82	83

The effect of Bromide of Camphor followed by Potassium Bromide on her Pulse Rate.

During the month, the first fortnight of which she was taking no medicine, and last 2 weeks, Bromide of Camphor, in 2 and 3 grain doses, her average pulse rate was 78 in the morning and 76 at night.

The next 3 months, while taking Bromide of Camphor in doses rising from 4 to 7 grains first week, then reduced from 8 to 5 grains second week, and reduced from 4 to 2 and raised again to 4 grains third week, her average pulse rate was 81 in the morning and 80 at night, showing a slight increase from previous month.

The following 3 months, while taking Bromide of Camphor in doses raised from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and then raised to 5 grains the third month, her average pulse rate fell slightly, being 79 in the morning and 78 at night.

The following 3 months, while taking Bromide of Camphor in doses rising from 6 to 8 and then reduced to 7 grains first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 the third month, her average pulse rate remained unchanged, being 79 in the morning and 78 at night.

The next 3 months, when taking Bromide of Camphor in doses rising from 7 to 8 and reduced to 6 grains the first month, then reduced from 5 to 2 and raised to 3 grains the second month, and raised from 4 to 7 grains the third month, her average pulse rate was unchanged in the morning,

being 79, and slightly raised at night, being 81.

The following 3 months, while taking Bromide of Camphor in doses reduced from 8 to 5 grains first month, and from 4 to 2 and raised to 3 second month, and raised from 4 to 8 grains the third month, her average pulse rate rose slightly in the morning, being 80, and remained unaltered at night, being also 80.

The last 3 months, while taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, and from 3 to 2 and raised to 4 second month, and finally raised from 5 to 8 grains the last month, there was little change in her average pulse rate, the morning being 80 and the evening 81.

During the 19 months, when she was taking Bromide of Camphor in doses raised from 2 to 8 grains and reduced from 8 to 2 grains by 1 grain per week, her average pulse rate in the morning was 80 and in the evening 85.

The highest pulse rate during the time she was taking Bromide of Camphor was recorded during the second and third months, when her average evening pulse rate was 83 when taking this drug in doses rising from 4 to 7 grains in second month, and during third month, when taking Bromide of Camphor in doses reduced from 8 to 5 grains, her average pulse rate was 83.

During the first month, when taking Potassium Bromide, grains 45 daily, her average pulse rate in the morning was 83, and in the evening also 83.

The next month her average morning pulse rate fell to 81, and at night was unchanged, being 83, while taking

Potassium Bromide, 60 grains daily.

The following month, while taking Potassium Bromide, 90 grains daily, there was a slight rise in her average morning pulse rate to 83, and in the evening was 82.

The next month, while taking 120 grains daily of Potassium Bromide, there was little change, her average pulse rate being 82 in the morning and 83 at night.

While taking 135 grains daily of Potassium Bromide, her average morning pulse rate fell to 80, and her evening pulse rate also fell to 80.

The last month, while taking Potassium Bromide, 150 grains daily, her average morning pulse rate rose to 82, and at night to 83.

During the 6 months she was taking Potassium Bromide in doses varying from 45 to 150 grains daily, her average morning pulse rate was 82 and in the evening 81; and during these 6 months the highest average pulse rate recorded was 83, this representing her pulse rate on five occasions.

<u>The effect of Bromide of Camphor followed by Potassium Bromide on the Character of her fits.</u>

From her admission in November 1899 to December 24 1903, while taking Potassium Bromide, grains 45 daily, she had fairly frequent fits, a large number being of the Petit Mal nature, and those of the Grand Mal type were not very severe. During the 19 months she was taking Bromide of Camphor there was a complete alteration in the character of her fits; the number of her day attacks soon became more numerous and much more serious, all her fits during

this time being of the Grand Mal nature; all the stages of her attacks were prolonged, and this drug seemed to have no power in controlling the severity of her fits.

When taking Bromide of Potassium for last 6 months her fits became less severe, and the beneficial influence of this drug soon made itself evident, her fits being shortened in all stages, and coma being very slight in character.

The effect of Bromide of Camphor followed by Potassium Bromide on her Mental Condition between the fits.

From her admission up to the time when Bromide of Camphor was administered she was simple and childish, easily amused and liable to infrequent outbursts of excitement; was a willing and useful worker in the ward.

During the 19 months while taking Bromide of Camphor her mental state was highly unsatisfactory; she became irritable, peevish, and much more violent, having frequent outbursts of maniacal excitement. The nurses complained bitterly of her altered mental condition as she was, during this time, unable to do any work in the ward where previously she had been most useful in assisting to clean wet and dirty cases, &c.

The last 6 months, when Bromide of Potassium was substituted for Bromide of Camphor, she soon became less irritable, and was more cheerful and willing to help in the ward, taking more interest in her surroundings and having, during this six months, no outbursts of excitement, showing the marked power Bromide of Potassium had over

her mental state as compared with Bromide of Camphor.

The effect of Bromide of Camphor followed by Potassium Bromide on her General Health.

While taking Bromide of Camphor her general health was not good. She constantly complained of feeling ill, saying she had a low tired feeling, and she did not look well, although her bodily weight increased steadily during the administration of this drug; she, at times, took her food badly, refusing some meals altogether and having to be given extra diet.

When Bromide of Potassium was given in place of Bromide of Camphor her general health soon improved and she took her food better and appeared more healthy altogether.

Case 3.

J.M. admitted July 10, 1896, aged 33 years.

Previous History - was well up to 27 years of age when he became very intemperate, and at this age had his first fit, which have continued since. He has lately become irritable and violent and quite unmanageable at home.

Mentally - suffering from Mania, is subject to outbursts of wild excitement, when he is very desperate, bites and kicks those near, &c; between these attacks he is sullen, irritable, and disposed to quarrel with his fellow-patients.

Physically well nourished; organs appear healthy.

Doses of Bromide of Camphor followed by Potassium Bromide given in this Case.

From Dec.24,1903	to	Jan.24,1904				No medicines administered	
" Jan.24,1904	"	March 6,	"	B. of C.	2 to 8	grs. daily	increased by 1 gr per wk
" March 6,	"	April 16,	"	"	8 to 2	"	diminished "
" April 16,	"	May 28,	"	"	2 to 8	"	increased "
" May 28,	"	July 9,	"	"	8 to 2	"	diminished "
" July 9,	"	Aug, 19,	"	"	2 to 8	"	increased "
" Aug.19,	"	Sept.30,	"	"	8 to 2	"	diminished "
" Sept.30,	"	Nov.11,	"	"	2 to 8	"	increased "
" Nov.11,	"	Dec.23,	"	"	8 to 2	"	diminished "
" Dec.23,	"	Feb.4, 1905		"	2 to 8	"	increased "
" Feb.4, 1905	"	March 18,	"	"	8 to 2	"	diminished "
" March 18,	"	April 29,	"	"	2 to 8	"	increased "
" April 29,	"	June 9,	"	"	8 to 2	"	diminished "
" June 9,	"	July 22,	"	"	2 to 8	"	increased "
" July 22,	"	Aug. 22,	"	Potassium Bromide	15	"	three times daily
" Aug.22,	"	Sept.22,	"	"	20	"	"
" Sept.22,	"	Oct.22,	"	"	30	"	"
" Oct.22,	"	Nov.22,	"	"	40	"	"
" Nov.22,	"	Dec.22,	"	"	45	"	"
" Dec.22,	"	Jan.22, 1906		"	50	"	"

JOHN M.

Number of day and night fits since his admission on July 10, 1896.

	Jan. d. n.	Feb. d. n.	Mar. d. n.	April d. n.	May d. n.	June d. n.	July d. n.	Aug. d. n.	Sep. d. n.	Oct. d. n.	Nov. d. n.	Dec. d. n.	Total of d. n.	Total.
1896.	- -	- -	- -	- -	- -	- -	4. -	11. -	26. -	21. 55.	48.152.	48.143.	128. 350.	478.
1897.	3. 4.	29. 80!	34.116.	23.102.	3. -	18. 89.	34.148.	6. 33.	19. 72.	29. 82.	7. 17.	52.126.	257. 869.	1126.
1898.	16. 96.	8. -	32.145.	10. 64.	8. 11.	29.123.	- 18.	19. 96.	12. 31.	17.109.	13. 45.	23. 49.	187. 787.	974.
1899.	39.149.	2. 24.	29. 78.	42. 97.	18. 59.	37.138.	2. 11.	33.113.	4. 6.	24.125.	15. 37.	.27.111.	272. 948.	1220.
1900.	17.135.	2. 1.	28.142.	28. 93.	8. 41.	19.136.	69. 100.	20. 79.	28. 92.	44. 88.	18. 52.	17. 92.	298.1051.	1349.
1901.	16.130.	34.192.	12. 37.	26. 94.	10. 39.	40.107.	11. 68.	17.121.	19.103.	204. 65.	17. 59.	39. 77.	265.1092.	1357.
1902.	32. 62.	26. 59.	31. 79.	15.112.	23. 82.	13. 64.	30. 74.	13. 56.	9. 50.	12. 46.	30. 45.	22. 48.	256. 777.	1033.
1903.	12. 39.	21. 50.	30. 78.	19. 63.	13.119.	7..104.	8. 88.	19. 32.	21. 59.	32. 74.	57. 55.	61. 48. all med. stopped.	300. 809.	1109.
1904.	45. 61.	40. 50.	47. 54.	19. 66..	30. 63.	49. 51.	37. 51.	39. 63.	19. 65.	31. 59.	51. 50.	53. 50.	460. 883.	1343.
	B.of C. 2-3 gr.	B.of C. 4-7 gr.	B. of C. 8-5 gr.	B. of C. 4 4 gr.	B. of C. 5-8 gr.	B.of C. 7-4 gr.	B.of C. 3-5 gr.	B.of C. 6-7 gr.	B. of C. 6-2 gr.	B.of C. 3-6 gr.	B.of C. 7-6 gr.	B.of C. 5-3 gr.		
1905.	63. 50.	30. 30.	18. 11.	27. 20.	36. 44.	42. 51.	44. 47.	49. 29.	31. 40.	38. 34.	44. 20.	28. 5.	450. 381.	831.
	B.of C. 4-7 gr.	B.of C. 8-5 gr.	B.of C. 4-3 gr.	B.of C. 4-8 gr.	B.of C. 7-4 gr.	B.of C. 3-4 gr.	Pot.Bro. 15 grs.	Pot.Bro. 20 grs.	Pot.Bro. 30 grs.	Pot.Bro. 40 grs.	Pot.Bro. 45 grs.	Pot.Bro. 50 grs.		
1906.	17. 1.													
	Pot Bro. 50 grs.													

Doses of Brom of Cam. raised from 2 to 8 grs. by 1 gr. per week then reduced from 8 to 2 grs by 1 gr.per week.
All doses of Brom.ofCam. given 1 gr.at a time. Brom.of Pot. given thrice daily after food.

The effect of Bromide of Camphor followed by Potassium Bromide on the number of his fits.

The yearly table shows his day and night fits since his admission, as follows:-

	Day	Night	Total.
in 1896 (from July 10)	128	350	478
" 1897	257	869	1126
" 1898	187	787	974
" 1899	272	948	1220
" 1900	298	1051	1349
" 1901	265	1092	1357
" 1902	256	777	1033
" 1903	300	809	1109
" 1904	460	883	1343
" 1905	450	381	831

From his admission in July 1896 up to December 24 1903, he was taking Potassium Bromide, 45 grains daily; he had a yearly average of 1092 fits during the year 1904, When taking Bromide of Camphor he had more day fits than any other year previously, his night fits not being increased to such a marked extent; during that year he had a total of 1343 fits. The first 6 months of 1905, when Bromide of Camphor was continued he had 238 day and 233 night fits, being a total of 471, showing that he still continued having a large number of fits.

During the last 6 months, when taking Bromide of Potassium he had 212 day and 152 night fits, giving a total of 364, being 107 less than previous 6 months.

The effect of Bromide of Camphor followed by Potassium Bromide on his Temperature.

The following table shows his average morning and evening temperature per month while taking Bromide of Camphor followed by Potassium Bromide, and doses given:-

Doses of Brom.of Cam. each fig.representing dose per week during month.		Average Temperature per month. M	N
	Average temperature when no medicines taken and last 2 weeks Brom.of Cam. in 2 & 3 grain doses.	96.9	97
4.5.6.7 grains		96.6	97.3
8.7.6.5 "		96.7	97.3
4.3.2.3.4 "		96.5	97.3
5.6.7.8 "		96.7	97.3
7.6.5.4 "		96.6	97.5
3.2.3.4.5 "		96.6	97.6
6.7.8.7 "		96.5	97.6
6.5.4.3.2 "		96.6	97.7
3.4.5.6 "		96.7	97.6
7.8.7.6 "		96.6	97.8
5.4.3.2.3 "		96.7	97.6
4.5.6.7 "		96.4	97.9
8.7.6.5. "		96.5	97.5
4.3.2.3 "		96.6	97.3
4.5.6.7.8 "		96.4	97
7.6.5.4 "		96.5	97.1
3.2.3.4 "		96.4	97.2
5.6.7.8 "		96.6	97.3
Pot Brom.dose daily per month.			
45 grains		96.6	97.2
60 "		96.5	96.7
90 "		96.3	97.1
120 "		96.3	96.7
135 "		96.5	96.5
150 "		96.5	96.4

During the month when, for first fortnight, he was taking no medicines, and last 2 weeks Bromide of Camphor in 2 and then 3 grain doses, his average temperature was 96.9 in the morning and 97 at night. The next 3 months, while taking Bromide of Camphor in doses raised from 4 to

7 grains first month, then reduced from 8 to 5 grains second month, and reduced from 4 to 2 and raised to 4 the third month, there was a slight fall in his average morning temperature, being 96.6, and a slight rise in his average evening temperature, being 97.3. The following 3 months, when taking Bromide of Camphor in doses raised from 5 to 8 grains the first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and raised to 5 the third month, there was little alteration in his average temperature, being 96.6 in the morning and 97.4 at night. The next 3 months, while taking Bromide of Camphor in doses raised from 6 to 7 grains first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 grains third month, there was again practically no change in his average temperature, being 96.6 in the morning and 97.3 at night. The following 3 months, when taking Bromide of Camphor in doses raised from 7 to 8 and reduced to 6 grains first month, then reduced from 5 to 2 and raised to 3 grains second month, and raised from 4 to 7 grains third month, there was a slight lowering of his average morning temperature which was 96.2, and a slight rise in his evening temperature, being 97.7.

The next 3 months, while taking Bromide of Camphor in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains second month, and raised from 4 to 8 grains the third month, his average temperature fell, slightly in the morning to 96.1 and more markedly at night to 97.2.

The last 3 months, while taking Bromide of Camphor

in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 second month, and finally raised from 5 to 8 last month, his average morning temperature rose slightly, being 96.5, and his evening temperature remaining unchanged at 97.2.

During the 19 months he was taking Bromide of Camphor his average morning temperature was 96.5 and his average evening temperature 97.4, and during these months the highest average temperature recorded was 97.9, being his average evening temperature during the 13th month, when taking Bromide of Camphor in doses rising from 4 to 7 grains, increased by 1 grain per week.

The first month, when taking Potassium Bromide, 45 grains daily, his average temperature was 96.6 in the morning and 97.2 at night.

The next month the dose of Potassium Bromide being raised to 60 grains daily, there was a slight fall in his average morning temperature to 96.5, and a more marked lowering of his evening temperature to 96.7.

While taking Potassium Bromide, 90 grains daily, the next month, his average morning temperature still continued to fall, being 96.3, while his evening temperature rose to 97.1.

The next month his average morning temperature was unchanged, being 96.3, but his evening temperature fell to 96.7, while taking Potassium Bromide, 120 grains daily.

The following month, when Potassium Bromide was given in 135 grains daily, his average morning temperature rose slightly to 96.5, while his evening temperature fell to 96.5.

The last month, while taking Potassium Bromide, 150 grains daily, there was little alteration in his average temperature, being 96.5 in the morning and 96.4 at night.

During the 6 months he was taking Potassium Bromide in doses varying from 45 to 150 grains daily, his average morning temperature was 96.4, and his average evening temperature 96.7. During these months the highest average temperature recorded was 97.2, being his average evening temperature when taking Potassium Bromide, 45 grains daily.

The effect of Bromide of Camphor followed by Potassium Bromide on his Pulse Rate.

The following table shows his average pulse rate per month, counted night and morning, while taking Bromide of Camphor followed by Potassium Bromide, and doses given:-

Doses of Brom.of Cam. each fig.representing dose per week during month.	Average Pulse Rate per month	
	M	N
Average pulse rate when no medicines taken, and last 2 weeks Brom.of Cam. given in 2 & 3 grain doses	95	93
4.5.6.7 grains	96	93
8.7.6.5 "	87	89
4.3.2.3.4 "	82	89
5.6.7.8 "	84	88
7.6.5.4 "	88	89
3.2.3.4.5 "	91	93
6.7.8.7 "	88	91
5.6.4.3.2 "	86	88
3.4.5.6 "	87	89
7.8.7.6 "	87	89
5.4.3.2.3 "	87	88
4.5.6.7 "	85	85
8.7.6.5 "	85	83
4.3.2.3 "	82	82
4.5.6.7.8 "	83	83
7.6.5.4 "	81	86
3.2.3.4 "	81	83
5.6.7.8 "	79	81
B.of Pot.dose daily per month.		
45 grains	82	82
60 "	83	85
90 "	80	81
120 "	82	82
135 "	83	84
150 "	87	85

The effect of Bromide of Camphor followed by Potassium Bromide on his Pulse Rate.

During the month when, for first fortnight, he was taking no medicines, and last 2 weeks Bromide of Camphor in 2 and then 3 grain doses, his average pulse rate was 95 in the morning and 93 at night.

The next 3 months, while taking Bromide of Camphor in doses rising from 4 to 7 grains first month, then reduced from 8 to 5 second month, and reduced from 4 to 2 and raised to 4 the third month, his average pulse rate for the 3 months fell to 85 in the morning and 90 at night.

The following 3 months, when taking Bromide of Camphor in doses rising from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and then raised to 5 grains the third month, his average morning pulse rate rose slightly to 87, while his evening pulse rate was unchanged, being 90.

The next 3 months, while taking Bromide of Camphor in doses rising from 6 to 8 and then reduced to 7 grains first month, then reduced from 5 to 2 grains second month, and raised from 3 to 6 grains the third month, his average morning pulse rate fell to 83, and in the evening to 89.

During the next 3 months, while taking Bromide of Camphor in doses raised from 7 to 8 and reduced to 6 grains first month, then reduced from 5 to 2 and raised to 3 grains second month, and raised from 4 to 7 grains the third month, his average morning pulse rate rose slightly to 86, while his evening pulse rate fell to 87.

The next 3 months, when taking Bromide of Camphor in

doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains second month, and raised from 4 to 8 grains the third month, his average pulse rate fell to 83 in the morning and 82 at night.

During the last 3 months his average pulse rate still fell in the morning, being 80, while his average evening pulse rate rose to 83, when taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains second month, and finally raised from 5 to 8 grains third month.

During the 19 months while taking Bromide of Camphor his average morning pulse rate was 80 and his average evening pulse rate 83.

The highest pulse rate recorded during these 19 months was 93, being his average pulse rate during first, second and seventh months.

During the first month, when taking Bromide of Potassium, 45 grains daily, his average morning pulse rate was 82, and in the evening also 82.

The next month, while taking Potassium Bromide, 60 grains daily, there was a slight rise in his average pulse rate, being 83 in the morning and 85 at night.

While the dose of Potassium Bromide was raised to 90 grains daily the following month, his average pulse rate fell to 80 in the morning and 81 at night.

There was a slight rise in his average pulse rate for next month, when taking Potassium Bromide, 120 grains daily, his average morning pulse rate being 82, and in the evening also 82.

The next month, when taking Potassium Bromide, 135 grains daily, his average pulse rate rose slightly to 83 in the morning and 84 at night; and the last month his average morning pulse rate rose to 87, and 85 in the evening, when taking Potassium Bromide 150 grains daily.

During the 6 months, when he was taking Potassium Bromide in doses varying from 45 to 150 grains, his average morning pulse rate was 82, and in the evening 83; and the highest average pulse rate recorded was 87, being his average morning pulse rate when taking Potassium Bromide, 150 grains daily.

The effect of Bromide of Camphor followed by Potassium Bromide on his Bodily Weight.

The following table shows his weight per month while taking Bromide of Camphor followed by Potassium Bromide, and doses given:-

Doses of Brom.of Cam. each fig.representing dose per week during month.	Weight in lbs per month.
	Weight during time when no medicines taken, and last 2 weeks when Brom.of Cam.given in 2 & then 3 grain doses — 1011
4.5.6.7 grains	1026
8.7.6.5 "	1024
4.3.2.3.4 "	1018½
5.6.7.8 "	1091½
7.6.5.4 "	1081½
3.2.3.4.5 "	972½
6.7.8.7 "	968½
6.5.4.3.2 "	969½
3.4.5.6 "	980
7.8.7.6 "	1017
5.4.3.2.3 "	1012
4.5.6.7 "	1017
8.7.6.5 "	1023½
4.3.2.3 "	1027½
4.5.6.7.8 "	1097
7.6.5.4 "	964½
3.2.3.4 "	981
5.6.7.8 "	1020

(contd.)

Potass.Brom. dose daily per month.	Weight in lbs per month.
45 grains	1019
60 "	1004½
90 "	995¼
120 "	987
135 "	990
150 "	990½

The effect of Bromide of Camphor followed by Potassium Bromide on his Bodily Weight.

During the month, the first fortnight of which he was taking no medicines, and last 2 weeks Bromide of Camphor in 1 and then 2 grain doses, his bodily weight was 1011 lbs.

The next 3 months, while taking Bromide of Camphor in doses rising from 4 to 7 grains first month, then reduced from 8 to 5 grains second month, and reduced from 4 to 2 and raised to 4 grains the third month, his average weight was 1022 lbs, being a gain of 11 lbs on previous month.

The following 3 months his average weight was 1038 lbs, being a further gain of 16 lbs when taking Bromide of Camphor in doses rising from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and raised to 5 grains the third month.

The next 3 months, while taking Bromide of Camphor in doses raised from 6 to 8 and reduced to 7 grains first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 grains third month, his average weight was 972 lbs, being a loss of 63 lbs as compared with previous 3 months.

He gained 37 lbs the following 3 months, his average

weight being 1012 lbs, while taking Bromide of Camphor in doses raised from 7 to 8 and reduced to 6 grains first month, then reduced from 5 to 2 and raised to 3 grains second month, and raised from 4 to 7 grains third month.

The next 3 months, when taking Bromide of Camphor in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains second month, and raised from 4 to 8 grains third month, his average weight was 1049 lbs, being a gain of 37 lbs on previous 3 months.

The last 3 months, while taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains second month, and finally raised from 5 to 8 grains, his average weight was 988 lbs, being a loss of 61 lbs.

During the 19 months, while taking Bromide of Camphor, his average weight was 1020 lbs, and highest weight recorded for any month was 1097 lbs, being his weight during 16th month, when taking Bromide of Camphor in doses rising from 4 to 8 grains by an increase of 1 grain per week.

The first month, when taking Potassium Bromide, 45 grains daily, his weight was 1019 lbs.

The next month, when taking Potassium Bromide, 60 grains daily, he lost 15 lbs.

During the month when taking Potassium Bromide, 90 grains daily, he lost another 9 lbs, and the following month when taking Potassium Bromide, 120 grains daily, he lost 8 lbs.

When taking Potassium Bromide, 135 grains daily, he

gained 3 lbs; and during the last month, when taking Potassium Bromide, 150 grains, he only gained ½ lb.

During the 6 months he was taking Potassium Bromide in doses varying from 45 to 150 grains daily, his average weight was 997 lbs, and the highest recorded weight during that time was 1019 lbs, being his weight during the first month he was taking Bromide of Potassium, 45 grains daily.

The effect of Bromide of Camphor followed by Potassium.Bromide on the character of his fits.

From his admission in July, 1896 up to December 24, 1903, he had fits chiefly of the Petit Mal type, with an occasional Grand Mal seizure. This patient frequently has several petit mal fits in succession, and has on an average, twice or thrice weekly, a grand mal seizure which is never very severe.

During the 19 months he was taking Bromide of Camphor his petit mal fits increased considerably in number with no change in their character; they came on in exactly the same manner as previously, namely, several at a time in succession; he also had the grand mal fits occurring as usual, two or three times weekly, with unchanged character, demonstrating that Bromide of Camphor had no power in curtailing the number or lessening the severity of his fits.

During the 6 months he was taking Potassium Bromide his fits continued much the same until the larger doses were arrived at, 45 and 50 grains thrice daily, when they began to diminish in number, and during the month of

January, 1906, he only had 17 day and 1 night attacks; there was little change in their character.

The effect of Bromide of Camphor followed by Potassium Bromide on his Mental Condition between the fits.

From his admission in 1896 to December, 1903, he was irritable, sullen, prone to violence and liable to sudden outbursts of excitement, during which he was put to bed.

While taking Bromide of Camphor he was more irritable, and was more liable to outbursts of excitement, the drug showing no power as acting as a sedative to his frequently excited mental state.

When taking Bromide of Potassium, when dose was raised to 120 grains daily, he was much quieter and gave less trouble, and this improvement in his mental state continued during the time that he was taking this drug in large doses.

The effect of Bromide of Camphor followed by Potassium Bromide on his General Health.

He has always, since his admission, been a strong, healthy man, and during the time he was taking Bromide of Camphor followed by Potassium Bromide, he continued in good health, and neither of these drugs appeared to affect his general health: he took his food and slept well.

Case 4.

G.H.H., admitted September 21, 1899, aged 36 years.

Previous History - was well up to 12 years of age when he fell into a pond while skating, and was unconscious for a long time (definite time not stated); he never properly recovered from this accident, and at 16 years of age had his first fit, and these continued mild at first, gradually becoming more severe - lately has become very violent.

Mentally - Suffering from Dementia, has a dull, vacant expression, lost and confused, being quite unable to answer questions, is sullen, irritable, and prone to frequent outbursts of excitement, when he becomes very violent, and strikes out at those nearest indiscriminately.

Physically - a big, strong man; organs appear healthy.

Doses of Bromide of Camphor followed by Borax given in this Case.

From Dec.24,1903	to Jan.24,1904		No medicines administered		
" Jan.24, 1904	" March 6, "	B. of C.	2 to 8	grs.daily	increased by 1 gr.p.wk.
" March 6, "	" April 16, "	"	8 to 2	"	diminished "
" April 16, "	" May 28, "	"	2 to 8	"	increased "
" May 28, "	" July 9, "	"	8 to 2	"	diminished "
" July 9, "	" Aug.19, "	"	2 to 8	"	increased "
" Aug.19, "	" Sept.30 "	"	8 to 2	"	diminished "
" Sept.30, "	" Nov.11, "	"	2 to 8	"	increased "
" Nov.11, "	" Dec.23, "	"	8 to 2	"	diminished "
" Dec.23, "	" Feb.4, 1905	"	2 to 8	"	increased "
" Feb.4, 1905	" March 18, "	"	8 to 2	"	diminished "
" March 18, "	" April 29, "	"	2 to 8	"	increased "
" April 29, "	" June 9, "	"	8 to 2	"	diminished "
" June 9, "	" July 22, "	"	2 to 8	"	increased "
" July 22, "	" Aug.22, "	Borax	15	grains	three times daily
" Aug.22, "	" Sept.22, "	"	20	"	"
" Sept.22, "	" Oct.22, "	"	30	"	"
" Oct.22, "	" Nov.22, "	"	40	"	"
" Nov.22, "	" Dec.22, "	"	45	"	"
" Dec.22, "	" Jan.22, 1906	"	50	"	"

G. H. H.

Number of day and night fits since his admission on September 21, 1899.

	Jan. d. n.	Feb. d. n.	Mar. d. n.	April d. n.	May d. n.	June d. n.	July d. n.	Aug. d. n.	Sep.. d. n.	Oct. d. n.	Nov. d. n.	Dec. d.n.	Total of d. n.	Total.
1899.									2. 19.	3. 66.	6. 62.	7.93.	18.240.	258.
1900.	6. 85.	5. 71.	8. 91.	8. 52.	9. 64.	14.16.	12.56.	13. 66.	18. 68.	24. 72.	15. 65.	10.61.	142.817.	959.
1901.	8. 69.	6. 45.	15. 59.	22. 54.	16. 48.	19.56.	21.54.	17. 63.	23. 61.	20. 74.	24. 60.	18.63.	212.716.	928.
1902.	27. 69.	19. 50.	26. 52.	17. 54.	28. 46.	20.45.	23.63.	18. 67.	25. 51.	19. 57.	20. 55.	18.56.	260.665.	925.
1903.	26. 74.	18. 64.	7. 58.	20. 57.	22. 71.	18.69.	24.65.	23. 65.	18. 71.	27. 70.	12. 62.	4.44. all med. stopped.	219.770.	989.
1904.	8. 53. B.of C. 2-3 gr.	9. 55. B.of C. 4-7 gr.	9. 57. B.of C. 8-5 gr.	5. 43. B.of C. 4-4 gr.	3. 61. B.of C. 5-8 gr.	13.30. B.of C. 7-4.gr.	7.55. B.of C. 3-5 gr.	9. 50. B.of C. 6-7 gr.	9. 56. B.of C. 6-2.gr.	10.50. B.of C. 3-6 gr.	11. 55. B.of C. 7-6 gr.	11.55. B.of C. 5-3 gr.	104.620.	724.
1905.	14. 35. B.of C. 4-7 gr.	4. 38. B.of C. 8-5 gr.	2. 52. B.of C. 4-3 gr.	4. 54. B.of C. 4-8.gr.	17. 41. B.of C. 7-4 gr.	11.39. B.of C. 3-4 gr.	8.40. Borax, 15 gr.	5. 15. Borax, 20 gr.	6. 16. Borax, 30 gr.	8. 17. Borax, 40 gr.	8. 11. Borax, 45 gr.	3. 5. Borax, 50 gr.	90.363.	453.
1906.	2. 1. Borax, 50 gr.													

Doses of Bromide of Camphor raised from 2-8 grains by 1 grain per week, then reduced from 8-2 grs.by 1 gr.per wk.

" " " " " given 1 grain at a time.

Borax given three times after food.

The effect of Bromide of Camphor followed by Borax on the number of his fits.

The table, giving his fits since admission, shows his Day and Night fits per year, as follows:-

	Day	Night	Total
in 1899 (from September 21st)	18	240	258
" 1900	142	817	959
" 1901	212	716	928
" 1902	260	665	925
" 1903	219	770	989
" 1904	104	620	724
" 1905	90	363	453

From his admission in September 1899 to December 24 1903, he had a yearly average of 811 fits.

During the year 1904, when taking Bromide of Camphor, his day fits diminished in number, being 115 less than previous year; his night fits also diminished in number, being 150 less than previous year.

The first 6 months in 1905, up to July 22, while Bromide of Camphor was continued, he had 46 day and 284 night fits.

From July 22 to end of year 1905, he was taking Borax, and at the commencement of the administration of this drug a marked diminution at once took place in his fits, especially those which occurred at night, and this went on getting gradually less and less per month until, during December 1905, he only had 3 day and 5 night fits, and from that time up to January 22 1906, he only had 2 day and 1 night fits, showing the marked advantage Borax held

over Bromide of Camphor in diminishing the number of his fits.

The effect of Bromide of Camphor followed by Borax on his Temperature.

The following table shows his average morning and evening temperatures per month while taking Bromide of Camphor followed by Borax, ----------,--and doses given:-

Doses of Brom.of Cam. each fig.representing dose per wk. during month		Average Temperature per month. M	N
	Average temperature when no medicines taken, and last 2 weeks when Bromide of Camphor given in 2 & then 3 grain doses	96.6	96.9
4.5.6.7 grains		96.9	97.4
8.7.6.5 "		97.1	97.6
4.3.2.3.4 "		97	97.3
5.6.7.8 "		96.7	97.2
7.6.5.4 "		96.6	97.5
3.2.3.4.5 "		96.7	97.7
6.7.8.7 "		96.5	97.8
6.5.4.3.2 "		96.4	97.4
3.4.5.6 "		96.5	97.5
7.8.7.6 "		96.3	97.7
5.4.3.2.3 "		96.5	97.6
4.5.6.7 "		96.6	97.6
8.7.6.5 "		96.6	97.7
4.3.2.3 "		97	97.9
4.5.6.7.8 "		96.7	97.4
7.6.5.4 "		96.6	96.9
3.2.3.4 "		95.8	96.5
5.6.7.8 "		95.9	97.2
Borax dose daily per month.			
45 grains		95.9	96.8
60 "		96.2	96.7
90 "		95.7	96.7
120 "		96.1	96.8
135 "		96.4	96.8
150 "		96.2	97

During the month when, for first fortnight, no medicine was administered, and last 2 weeks when Bromide of Camphor was given in 2 and then 3 grain doses per week,

his average morning temperature was 96.6, and 96.9 at night.

The next 3 months, when taking Bromide of Camphor in doses rising from 4 to 7 grains first month, then reduced from 8 to 5 grains second month, and reduced from 4 to 2 and raised to 4 grains third month, his average morning temperature rose to 97, and his evening temperature to 97.4.

The following 3 months his average temperature fell to 96 in the morning, and at night was unchanged, being 97.4, while taking Bromide of Camphor in doses rising from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and raised to 5 grains third month.

The next 3 months, while taking doses of Bromide of Camphor rising from 6 to 8 and reduced to 7 grains first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 grains third month, his average morning temperature rose slightly to 96.4, there being little change in his evening temperature, which was 97.5.

While taking Bromide of Camphor in doses raised from 7 to 8 and reduced to 6 grains first month, then reduced from 5 to 2 and raised to 3 grains second month, and raised from 4 to 7 third month, his average temperature for next 3 months was unchanged in the morning, being 96.4, and slightly raised at night, being 97.6.

The next 3 months, while taking Bromide of Camphor in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains second month, and raised from 4 to 8 grains third month, his average

morning temperature rose to 96.7, his temperature at night being unchanged, 97.6.

The last 3 months, while taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains second month, and finally raised from 5 to 8 grains last month, his average temperature fell to 96.1 in the morning and to 96.9 at night.

During the 19 months he was taking Bromide of Camphor his average morning temperature was 96.5, and his average evening temperature 97.2.

The highest average temperature recorded was during the 15th month, being 97.9, when taking Bromide of Camphor in doses reduced from 4 to 2 and raised to 3 grains.

The first month he was taking Borax, 45 grains daily, his average morning temperature was 95.9 and 96.8 at night.

The next month, when taking Borax, 60 grains daily, his average morning temperature rose to 96.2, and fell slightly to 96.7 at night.

The dose of Borax being raised to 90 grains next month, his average morning temperature fell to 95.7, while his evening temperature remained unchanged, being 96.7.

The next month, while taking Borax, 120 grains daily, his average temperature rose a little, being 96.1 in the morning and 96.8 at night.

The following month, when taking Borax, 135 grains daily, his average morning temperature still rose to 96.4, and his average evening temperature remained unchanged

at 96.8.

The last month, while taking Borax, 150 grains daily, his average morning temperature fell slightly to 96.2, while his evening temperature rose to 97.

During the 6 months, while taking Borax in doses varying from 45 to 150 grains daily, his average morning temperature was 96.1, and his average evening temperature 96.3.

The highest average temperature recorded was 97, being his average evening temperature during the 6th month when taking Borax 150 grains daily.

The effect of Bromide of Camphor followed by Borax on his Bodily Weight.

The following table shows his bodily weight per month, while taking Bromide of Camphor followed by Borax, and doses given:-

Doses of Brom.of Cam. each fig.representing dose per week during month.	Weight per month in lbs.
	Weight during time when no medicines given, & last 2 weeks when Brom.of Cam.given in 2 & then 3 grains
4.5.6.7 grains	1399½
8.7.6.5 "	1382
4.3.2.3.4 "	1395½
5.6.7.8 "	1301
7.6.5.4 "	1354½
3.2.3.4.5 "	1267½
6.7.8.7 "	1310½
6.5.4.3.2 "	1300½
3.4.5.6 "	1271½
7.8.7.6 "	1268
5.4.3.2.3 "	1241½
4.5.6.7 "	1263½
8.7.6.5 "	1224½
4.3.2.3 "	1171
4.5.6.7.8 "	1205½
7.6.5.4 "	1217½
3.2.3.4 "	1217½
5.6.7.8 "	1212
	1191

Borax dose daily per month.	(contd.)	Weight per month in lbs.
45 grains		1216
60 "		1228
90 "		1225¼
120 "		1135½
135 "		1112¼
150 "		1139½

The effect of Bromide of Camphor followed by Borax on his Bodily Weight.

During the month, the first fortnight of which he was taking no medicine, and last 2 weeks 2 grains and then 3 grains of Bromide of Camphor, his bodily weight was 1399¼ lbs.

The next 3 months, while taking Bromide of Camphor in doses raised from 4 to 7 grains first month, then reduced from 8 to 5 grains second month, and reduced from 4 to 2 and raised to 4 grains third month, his average weight was 1359 lbs, being a loss of 40 lbs on previous month.

While taking Bromide of Camphor the following 3 months in doses raised from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and raised to 5 grains third month, he lost 49 lbs, his average weight being 1310 lbs.

The next 3 months, while taking Bromide of Camphor in doses rising from 6 to 8 and reduced to 7 grains first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 grains third month, his average weight was 1280 lbs, being a loss of 30 lbs as compared with previous 3 months.

The following 3 months, when taking Bromide of Cam-

phor in doses raised from 7 to 8 and reduced to 6 grains first month, then reduced from 5 to 2 and raised to 3 grains second month, and raised from 4 to 7 grains third month, his average weight was 1243 lbs, being a loss of 37 lbs on previous 3 months.

While taking Bromide of Camphor the next 3 months in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains second month, and raised from 4 to 8 grains third month, he lost another 45 lbs, his average weight being 1198 lbs.

The last 3 months, while taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains second month, and finally raised from 5 to 8 grains, he gained 8 lbs, his average weight being 1206 lbs.

This shows that in 17 out of 19 months while he was taking Bromide of Camphor he lost 201 lbs.

The highest weight recorded for any month was 1399½ lbs, being his weight during first month.

During the 19 months he was taking Bromide of Camphor his average weight was 1320 lbs.

The first month, while he was taking Borax, 45 grains daily, his weight was 1216 lbs, being an increase of 25 lbs on last month when taking Bromide of Camphor.

The second month, when taking Borax, 60 grains daily, he gained 12 lbs, his weight being 1228 lbs.

The next month, when taking Borax, 90 grains daily, he lost 3.lbs, his weight being 1225½ lbs.

The dose of Borax being raised to 120 grains the

following month, he gained 15½ lbs, his weight being 1135½ lbs.

When taking Borax, 135 grains daily, he lost 23½ lbs, his weight being 1112½ lbs.

And the last month, when taking Borax, 150 grains daily, he gained 27½ lbs, his weight being 1139½ lbs.

His average weight for the 6 months during which he was taking Borax in doses varying from 45 to 150 grains daily, was 1342 lbs, and his highest recorded monthly weight during this time was 1139½ lbs, being his weight while taking Borax, 150 grains daily.

The effect of Bromide of Camphor followed by Borax on his Pulse Rate.

The following table shows his average morning and evening Pulse Rate per month, counted while taking Bromide of Camphor followed by Borax, and doses given:-

Doses of Brom.of Cam. each fig.representing dose per wk.during mth.	Average pulse rate during time when no medicines taken & B.of C.given in 2 & then 3 grain doses	Average Pulse Rate per month. M	N
4.5.6.7 grains		101	97
8.7.6.5 "		97	93
4.3.2.3.4 "		95	96
5.6.7.8 "		95	90
7.6.5.4 "		88	91
3.2.3.4.5 "		90	88
6.7.8.7 "		89	94
6.5.4.3.2 "		90	91
3.4.5.6 "		89	93
7.8.7.6 "		93	98
5.4.3.2.3 "		88	89
4.5.6.7 "		87	89
8.7.6.5 "		89	91
4.3.2.3 "		88	90
4.5.6.7.8 "		91	89
7.6.5.4 "		87	93
3.2.3.4 "		84	87
5.6.7.8 "		87	92
		87	91

Borax dose daily per month.	(contd.)	Average Pulse Rate per month.	
45 grains		78	84
60 "		82	77
90 "		86	81
120 "		86	84
135 "		85	80
150 "		83	86

The effect of Bromide of Camphor followed by Borax on his Pulse Rate.

During the month when, for first fortnight, he was taking no medicines, and last 2 weeks Bromide of Camphor in 2 and then 3 grain doses per week, his average pulse rate was 101 in the morning and 97 at night.

The next 3 months, while taking Bromide of Camphor in doses raised from 4 to 7 grains first month, then reduced from 8 to 5 second month, and reduced from 4 to 2 and raised to 4 grains third month, his average pulse rate fell to 95 in the morning and 93 at night.

While taking Bromide of Camphor the following 3 months in doses raised from 5 to 8 grains first month, then reduced from 7 to 4 grains second month, and reduced from 3 to 2 and raised to 5 grains third month, his average pulse rate fell to 89 in the morning and 91 at night.

The next 3 months his average pulse rate rose to 90 in the morning and 94 in the evening, while taking Bromide of Camphor in doses raised from 6 to 8 and then reduced to 7 grains first month, then reduced from 6 to 2 grains second month, and raised from 3 to 6 grains third month.

The following 3 months, when taking Bromide of Camphor in doses raised from 7 to 8 and reduced to 6 grains first month, then reduced from 5 to 2 grains and raised to 3 grains the second month, and raised from 4 to 7 grains

third month, his average morning pulse rate rose to 94, while his average evening pulse rate fell to 89.

While taking Bromide of Camphor the next 3 months in doses reduced from 8 to 5 grains first month, then reduced from 4 to 2 and raised to 3 grains second month, and raised from 4 to 8 grains third month, his average morning pulse rate fell to 88, while his average evening pulse rate rose to 90.

The last 3 months, when taking Bromide of Camphor in doses reduced from 7 to 4 grains first month, then reduced from 3 to 2 and raised to 4 grains second month, and finally raised from 5 to 8 grains third month, his average pulse rate fell to 86 in the morning and 89 at night.

During the 19 months he was taking Bromide of Camphor in doses varying from 2 to 8 grains increased by 1 grain weekly, and then diminished from 8 to 2 grains by 1 grain weekly, his average morning pulse rate was 90, and his average evening pulse rate was 91. The highest recorded pulse rate during this time was 101, being his average morning pulse rate during first month.

While taking Borax, 45 grains daily, the first month, his average pulse rate was 78 in the morning and 84 at night.

The next month, when dose of Borax was raised to 60 grains daily, his average morning pulse rate rose to 82, and fell in the evening to 77.

The following month his average morning pulse rate rose to 86, and to 81 in the evening, while taking Borax,

90 grains daily.

When taking Borax, 120 grains daily, the next month, his average morning pulse rate was unchanged, being 86, while his evening pulse rate rose to 84.

While taking Borax, 135 grains daily, his average morning pulse rate fell to 85, and to 80 at night.

And during last month, while taking Borax, 150 grains daily, his average morning pulse rate fell to 83, but rose to 86 at night.

During the 6 months while he was taking Borax in varying doses from 45 to 60 grains daily, his average morning pulse rate was 83 and in the evening 82.

The highest recorded average pulse rate was 86, which was his pulse rate during the month he was taking Borax in 90 grains daily in morning, his morning pulse rate when taking 120 grains daily, and his evening pulse rate when taking 150 grains daily.

The effect of Bromide of Camphor followed by Borax on the character of his fits.

From his admission in September 1899 up to December 1903, he was in the habit of having very severe fits, all of the Grand Mal type; in these he always fell down, and the tonic and clonic stages were very severe.

During the 19 months he was taking Bromide of Camphor, the severity of his fits was unchanged, although under the influence of this drug he had much fewer fits, yet they continued with equal severity as previously.

During the six months, when taking Borax, his fits

continued with unchanged character, until he was taking 40 grains daily, when they became much less severe, this being so noticeable that the charge attendant of his ward remarked on this fact to the writer. The tonic spasm and clonic convulsions were much mitigated in severity, and the succeeding coma was shortened considerably.

The effect of Bromide of Camphor followed by Borax on his Mental Condition between the fits.

From 1899 to 1903, while taking Bromide of Potassium, 45 grains daily, he was sullen irritable, and self-absorbed, constantly quarreling with his fellow-patients and having severe fights and struggles with his attendants whom he attacked and assaulted in a most merciless manner.

During the 19 months he was taking Bromide of Camphor, his mental condition was much worse, being so irritable and violent that for lengthy periods at a time, it was necessary to keep him in bed.

While taking Borax for 6 months there was a slight improvement in his mental state and he was less violent, but still having frequent outbursts of maniacal excitement.

The effect of Bromide of Camphor followed by Borax on his General Health.

During the 19 months, when taking Bromide of Camphor, he steadily lost in weight up to the 17th month, losing altogether during these 17 months 201 lbs; he became pale and thin and looked ill, often refused his food, and was

given extra diet, and was at times sleepless at night.

During the 6 months when taking Borax he at once began to increase in weight, and soon improved in every way under the influence of this drug, taking his food and sleeping well.

GENERAL SUMMARY of the treatment of Epileptic Insanity by Bromide of Camphor.

The conclusions as to the use of Bromide of Camphor in Epileptic Insanity which I have arrived at after treating 4 cases with this drug for 19 months, are most unsatisfactory.

The effect of this drug on the number of fits - Only one case, G.H.H., was benefited by having a reduction in the number of his fits. Two cases, J.M. and S.A.T., during the time they were taking Bromide of Camphor, had their fits occurring with marked increased frequency, and in one case, B.M.W., her fits were increased, but to a less extent; so out of the four cases, Bromide of Camphor only exhibited its power in reducing the number of fits in one case.

(1)
Bourneville & Ambard state that Bromide of Camphor has a favourable action on attacks of vertiges Épileptiques, it diminishes their number and often causes them to disappear entirely.

Of the 4 cases I treated with this drug 2, J.M. and S.A.T., had fits chiefly of the Petit Mal type, and those

(1) Bourneville & Ambard - "Archives de Neurologie" 1902. No 79.

were the 2 cases in whom their fits were so markedly increased during the period they were taking Bromide of Camphor, so this by no means coincides with Bourneville & Ambard's observations.

The effect of Bromide of Camphor on the Mental Condition- In all four cases, while taking this drug, their mental states were highly unsatisfactory. In case of G.H.H., he spent a large portion of the 19 months during which he was taking Bromide of Camphor, in bed, on account of his increased violent propensities. In the case of B.M.W., while taking this drug, she was the pest of the ward, giving the nurse no rest. In the case of S.A.T., her mental condition was so altered that, from being a useful ward-worker, she became indolent, with her violent propensities much more pronounced; and in case of J.M., he displayed more irritability and was more prone to violence while taking this drug.

<u>The most effectual dose of Bromide of Camphor for Therapeutic purposes.</u>

While administering this drug for 19 months to 4 cases of Epileptic Insanity, I did not raise the dose beyond 8 grains per day, but in one case, previous to communicating with Dr Bourneville and adopting his method of giving the drug, I pushed it to 10 grains twice daily, and this dose was attended with alarming results as the patient had a large number of slight convulsions, and was in a semi-unconscious condition for a whole day; when drug was with-.

drawn he soon recovered.

In 3 of the 4 cases, whose fits were increased during the administration of the drug, any dose between 2 and 8 grains appeared to have little effect on their fits, either in diminishing the number, or severity. In the case of G.H.H., it was impossible to say that he was benefited by any special dose more than another, as during the time he was taking Bromide of Camphor his fits maintained a very equal average per month. Whatever dose was taken in any of those cases at no time did the drug appear to have any power in quietening the mental state.

What is the action of Bromide of Camphor in Epilepsy?

(1) Bourneville & Ambard state that Bromide of Camphor possesses a marked sedative action on the circulatory and respiratory functions, and particularly on the nervous system.

(2) Lauder Brunton says, Camphor, which is frequently used as an antispasmodic, has a stimulant action on the brain, spinal cord, circulation and respiration. It is probable that such antispasmodic powers as it possesses, are due to its exciting the higher centres, and increasing their inhibitory powers over the lower, and states that Bromo Camphor has a somewhat similar action.

In none of the 4 cases I treated with Bromide of Camphor did it exhibit any power as a cerebral sedative, in fact all these patients seemed more irritable and more

(1) Bourneville & Ambard - "Archives de Neurologie" 1902. No 79.
(2) Lauder Brunton - "A Textbook of Pharmacology Therapeutics & Materia Medica" p.213. 1893. 3rd edition.

easily excited when taking this drug. And I agree with Gowers, who says that the doses of Bromide of Camphor are too small to allow the Bromide to exercise its soothing influence in Epilepsy.

THE TREATMENT OF EPILEPTIC INSANITY BY BELLADONNNA FOLLOWED BY POTASSIUM BROMIDE.

(1) Gowers says, Belladonna has long been used in the treatment of Epilepsy, being recommended by Mardorf in 1691. He says he has met with no case of true Epilepsy in which the attacks ceased entirely on Belladonna, and adds that as an adjunct to Bromide its utility is often unquestionable.

(2) Trousseau says: "For more than 30 years I have treated Epilepsy with Belladonna, and it has seemed the least inefficacious of those I have ever tried; indeed, I now count a certain number of real cures, and in many cases I obtained an improvement which I dared not expect," and adds that the treatment should be persevered in not for months but for several years in succession, if necessary.

(3) Echeverria stated that he had pushed Belladonna to the highest possible dose in ordinary convulsive fits without in any way obtaining any reliable results.

(4) Ramskill agreed with Trousseau that the treatment of Epilepsy by Belladonna should be persevered with for a considerable time; he recommended that the initial dose

(1) Gowers - "Epilepsy & other Chronic Convulsive Diseases" p.281.1901.2nd ed.
(2) Trousseau - "Lectures on Clinical Medicine." The New Sydenham Society, vol.35 pp.94-95. 1868.
(3) Echeverria - "Anatomo-Pathological & Clinical Notes on Epilepsy" p.307.1870
(4) Ramskill - Medical Times & Gazette. Nov. 22, 1862.

should be ⅓ of a grain, gradually increased to 1/3 grain, and then gradually diminished to ⅓ grain again. He said he had given as much as 4 grains for a dose, but very rarely.

I have treated 3 cases of Epileptic Insanity with Belladonna, one with the Tincture of Belladonna, and 2 by the method advised and adopted by Trousseau, who administered the drug in the following manner:-

℞ Ext Belladonnae
Pulo Fol Belladonnae āā gr 1/5
Ft Pil.

One pill given daily for first month, then 1 pill added each subsequent month, the maximum dose depending on the action of the drug and its tolerance by the patient, the pills given once daily and always at same time.

The following 2 cases were treated by Belladonna, administered according to the method advised and adopted by Trousseau.

Case 1.

W.M., admitted November 28, 1900, aged 50 years.
Previous History - for last 9 years has been in Union, during which time has been subject to Epilepsy. Nothing known previously of patient - lately developed suicidal tendencies.
Family History - Unknown.
Mentally - he is suffering from Dementia, cannot converse, being lost and confused, is content to sit in one position for lengthy periods at a time, rocking himself to and fro,

taking no notice of his surroundings, and does not know people he meets daily.

Physically - well nourished; organs appear healthy.

Doses of Belladonna followed by Potassium Bromide given in this Case.

From Dec.24,1903	to	Jan.24,1904	No medicines administered		
" Jan.24,1904	"	Feb.24, "	Belladonna	2/5	of a grain once daily
" Feb.24,	"	March 24, "	"	4/5	"
" March 24,	"	April 24, "	"	1 1/5	grains
" April 24,	"	May 24, "	"	1 3/5	"
" May 24,	"	June 24, "	"	2	"
" June 24,	"	July 24, "	"	2 2/5	"
" July 24	"	Aug.24, "	"	2 4/5	"
" Aug.24,	"	Sept.24, "	"	3 1/5	"
" Sept.24,	"	Oct.24, "	"	3 3/5	"
" Oct.24,	"	Nov.24, "	"	4	"
" Nov.24,	"	Dec.24, "	"	4 2/5	"
" Dec.24,	"	Jan.24, 1905	"	4 4/5	"
" Jan.24, 1905	"	March 24, "	Potassium Bromide	15 "	thrice daily
" March 24,	"	May 24, "	"	20 "	"
" May 24,	"	Aug.24, "	"	30 "	"
" Aug.24,	"	Nov.24, "	"	40 "	"
" Nov.24,	"	Dec.24, "	"	45 "	"
" Dec.24,	"	Jan.24, 1906	"	50 "	"

The Belladonna pills were given at 9 a.m. every morning.

The effect of Belladonna followed by Potassium Bromide on the number of his fits.

The table giving his fits from admission, shows his Day and Night convulsions per year, as follows:-

	Day	Night	Total
in 1900 (from November 28th)	38	14	59
" 1901	242	128	370
" 1902	62	107	169
" 1903	121	174	295
" 1904	131	166	297
" 1905	55	21	79

From his admission, on November 24, 1900, to December 24 1903, while taking Potassium Bromide he had a yearly average of 222 fits.

On January 24, 1904, the treatment by Belladonna was commenced, and during the following 3 months his fits increased in number; this was more marked in his night fits, as during February, March and April, 1904, he had 83 night fits, being a marked increase as compared with former months.

When dose of Belladonna was raised to 2 grains per day his fits diminished in number and kept fairly low until 4 grains per day were given, when there was another increase of his night fits. During the year 1904 he had 131 day and 166 night fits, being a total of 297, and being only 2 fits more than he had during 1903, showing that Belladonna had little power in reducing the number of his fits.

During 1905 Bromide of Potassium was given, and his fits at once began to diminish in number, this being very

marked as dose was increased, and during the months of October, November, December of 1905, and January 1906, he only had 2 day and 4 night fits, showing the marked advantage Bromide of Potassium held over Belladonna in the power of reducing his fits.

The effect of Belladonna followed by Potassium Bromide on his Temperature.

The following table shows his average morning and evening temperature per month, while taking Belladonna followed by Potassium Bromide, and doses given:-

Doses daily of Ext Bella. Pulo Fol Bella. per month.	Average Temperature per month.		
	Average temperature during month when no medicines taken	M	N
2/5 of grain		96.7	97.2
4/5 "		96.6	97.1
1 1/5 "		96.4	97.4
1 3/5 "		96.3	97.2
2 "		96.8	97.7
2 2/5 "		96.3	97
2 4/5 "		96.8	97.1
3 1/5 "		96.9	97.2
3 3/5 "		97	97.4
4 "		96.8	96.9
4 2/5 "		96.6	97
4 4/5 "		96.4	97.2
Pot.Brom.doses daily per month.		96.3	97.3
45 grains		96	97.2
45 "		95.7	97
60 "		95.8	96.7
60 "		95.9	97
90 "		95.9	96.9
90 "		96.6	97.4
90 "		96.7	97.2
120 "		96.7	97
120 "		96	96.7
120 "		96.1	96.8
135 "		96.2	96.6
150 "		96.3	96.7

During the month when he was taking no medicine his average temperature was 96.7 in the morning and 97.2 at

night.

The next month, while taking Belladonna, 2/5 of grain daily, his average temperature fell to 96.6 in the morning and 97.1 at night.

While taking 4/5 of a grain of Belladonna daily the following month, his average morning temperature rose to 96.4, and there was also a slight rise to 97.4 in his evening temperature.

When dose of Belladonna was raised next month to 1 1/5 grains per day, there was a slight fall in his average temperature, being 96.3 in the morning and 97.2 at night.

The next month, while taking Belladonna, 1 3/5 grains daily, his average morning temperature rose to 96.8, and to 97.7 in the evening.

While taking 2 grains of Belladonna daily the following month, his average temperature fell to 96.3 in the morning and 97 at night.

The next month, when taking Belladonna, 2 2/5 grains, his average temperature rose to 96.8 in the morning and 97.1 at night, and next month continued to rise to 96.9 in the morning and 97.2 at night, while taking Belladonna 2 4/5 grains daily.

The dose of Belladonna being raised to 3 1/5 grains next month, his average temperature still continued to rise, being 97 in the morning and 97.4 at night, but fell next month to 96.8 in the morning and 96.9 at night, when taking Belladonna 3 2/5 grains daily.

The following month, when he was taking Belladonna,

4 grains daily, his average morning temperature fell to 96.6, while his evening temperature rose to 97, and next month his average morning temperature continued to fall, being 96.4, while there was another slight evening rise, being 97.2.

The last month, when taking Belladonna, 4 4/5 grains daily, his average morning temperature fell to 96.3, while his evening temperature rose slightly to 97.3.

During the 12 months he was taking Belladonna in doses varying from 2/5 grain to 4 4/5 grains daily, his average temperature was 96.6 in the morning and 97.2 at night, and during that time the highest temperature recorded was 97.7, being his average evening temperature during the 4th month, when taking Belladonna, 1 3/5 grains daily.

The next 2 months, Bromide of Potassium being substituted for Belladonna in 45 grain doses daily, his average morning temperature was 95.8, and 97.1 in the evening.

During the next 2 months his average morning temperature continued unchanged, being 95.8, while his average evening temperature fell to 96.8, when taking Potassium Bromide, 60 grains daily.

The dose of Potassium Bromide being raised to 90 grains daily the next 3 months, his average temperature rose to 96.4 in the morning, and to 97.1 at night.

The following 3 months his average temperature fell to 96.2 in the morning and to 96.8 at night, while taking Potassium Bromide, 120 grains daily.

The next month, when taking Potassium Bromide, 135 grains daily, his average morning temperature was unchanged, being 96.2, while there was a slight evening fall to 96.6 compared with average temperature of previous 3 months.

The last month, when dose of Potassium was finally raised to 150 grains daily, there was a slight rise in his average temperature as compared with previous month to 96.3 in the morning, and to 96.7 at night.

During the 12 months he was taking Potassium Bromide in doses varying from 45 to 150 grains daily, his average morning temperature was 96.1, and his average evening temperature 97.4, and during this time the highest recorded temperature for 1 month was 97.4, being his average evening temperature for 6th month, while taking Potassium Bromide, 90 grains daily.

There was little difference between his average temperature during first 12 months when taking Belladonna, and during the second 12 months, when taking Bromide of Potassium, shown as follows:-

	M	N	
Belladonna	96.6	97.2	Average temperature
Potassium Bromide	96.1	97.4	

The effect of Belladonna followed by Potassium Bromide on his Pulse Rate.

The following table shows his average Pulse Rate per month, counted night and morning, while taking Belladonna followed by Potassium Bromide, and doses given:-

Doses daily of Ext Bella. Pulo Fol Bella. per month.		Average Pulse Rate per month. M	N
	Average Pulse Rate during month when no medicine taken	82	78
2/5	of grain	83	78
4/5	"	87	79
1 1/5	grains	82	77
1 3/5	"	80	77
2	"	75	74
2 2/5	"	75	75
2 4/5	"	75	73
3 1/5	"	81	80
3 3/5	"	79	76
4	"	83	80
4 2/5	"	86	83
4 4/5	"	89	82
Pot.Brom.doses daily per month.			
45	grains	87	79
45	"	80	76
60	"	78	72
60	"	75	76
90	"	74	72
90	"	74	75
90	"	75	73
120	"	81	73
120	"	81	75
120	"	83	80
130	"	85	80
150	"	87	89

The effect of Belladonna followed by Potassium Bromide on his Pulse Rate.

During the month when he was taking no medicine, his average pulse rate was 82 in the morning and 78 at night.

The next month, while taking Belladonna, 2/5 grain daily, his average pulse rate was little changed, being 83 in the morning and 78 at night.

While taking Belladonna 4/5 of grain daily, next month, his average morning pulse rate rose to 87, and to 79 in the evening, but fell next month to 82 in the morning and 77 at night, while taking Belladonna, 1 1/5 grains daily.

While taking Belladonna, 1 3/5 grains daily the following

month, his average morning pulse rate fell to 80, while it remained unchanged in the evening, being 77.

The next month, when dose of Belladonna was 2 grains daily, his average pulse rate fell in the morning to 75, and at night to 74.

The following month, when taking Belladonna, 2 2/5 grains daily, there was little change in his average pulse rate, being 75 in the morning and 75 at night; the next month there was also little alteration, being 75 in the morning and 73 in the evening, while taking Belladonna, 2 4/5 grains daily.

The dose of Belladonna being raised to 3 1/5 grains daily, his average pulse rate rose the next month to 81 in the morning and 80 at night, but fell again the following month to 79 in the morning and 76 at night, while taking Belladonna, 3 3/5 grains daily.

The next month, while dose of Belladonna was 4 grains daily, his average pulse rate rose to 83 in morning and 80 at night, and rose to 86 in morning and 83 at night during following month, when dose of Belladonna was raised to 4 2/5 grains, and last month continued to rise to 89 in morning, while there was a slight fall at night, being 82, when dose of Belladonna was finally raised to 4 4/5 grains daily.

During the 12 months he was taking Belladonna in doses varying from 2/5 to 4 4/5 grains, his average morning pulse rate was 81, and his average evening pulse rate 77; and during that tine the highest pulse rate recorded for any month was 89, being his average morning pulse rate

during 12th month, when taking Belladonna, 4 4/5 grains daily.

During the next 2 months, when Bromide of Potassium, 45 grains daily, was given in place of Belladonna, his average morning pulse rate was 83, and 72 in the evening.

The next 2 months his average pulse rate fell to 71 in the morning, and rose to 74 at night, while taking Potassium Bromide, 60 grains daily.

The following 3 months, when taking Potassium Bromide, 90 grains daily, there was a slight morning rise in his average pulse rate to 74, while his evening pulse rate fell to 73.

The dose of Bromide of Potassium being raised the next 3 months to 120 grains daily, his average pulse rate rose to 81 in the morning and to 76 at night.

The next month, when taking Potassium Bromide, grains 135 daily, his average morning pulse rate rose to 85, and to 80 in the evening as compared with previous 3 months.

The last month, when taking Potassium Bromide, 150 grains daily, his average pulse rate rose still higher to 87 in the morning and 89 at night.

During the 12 months he was taking Potassium Bromide in doses varying from 45 to 150 grains daily, his average pulse rate was 80 in the morning and 76 in the evening, showing little change from his average pulse rate for previous 12 months, when taking Belladonna, shown below as follows:-

		M	N	
1st 12 months	taking Belladonna	81	71	average pulse rate
2nd 12 "	" Potassium Bromide	80	76	" " "

During the 12 months, when taking Potassium Bromide, his highest recorded average pulse rate for any month was 89, being his average pulse rate for 12th month, when taking Potassium Bromide, 150 grains daily.

The effect of Belladonna followed by Potassium Bromide on his Bodily Weight.

The following table shows his bodily weight per month, while taking Belladonna followed by Potassium Bromide, and doses given:-

Doses daily of Ext Bella.Pulo Fol Bella.per month.	Weight per month in lbs.
Weight during month when no medicines taken	1079½
2/5 of grain	1079¾
4/5 "	1086½
1 1/5 grains	1078
1 3/5 "	1079
2 "	1081½
2 2/5 "	1093
2 4/5 "	1097¾
3 1/5 "	1105¾
3 3/5 "	1109¾
4 "	1105¼
4 2/5 "	1112¾
4 4/5 "	1121¼
Pot.Brom.doses daily per month.	
45 grains	1110¾
45 "	1110¾
60 "	1106¼
60 "	1122½
90 "	1166½
90 "	1165¾
90 "	1195
120 "	1214
120 "	1200¾
120 "	1157
135 "	1164¾
150 "	1154

During the month, when taking no medicine, his weight was 1079½lbs.

The first month, when taking Belladonna, 2/5 grain daily, he only gained ¼ of a lb. When Belladonna was

given in 4/5 of grain daily, he gained 7 lbs during the month, but lost 8 lbs the following month, when taking Belladonna, 1 1/5 grains daily.

The next month there was again of 1 lb, while taking Belladonna, 1 3/5 grains daily; and when taking Belladonna, 2 grains daily, he gained 2½ lbs.

The next month he gained 12 lbs when taking Belladonna, 2 2/5 grains daily; and gained another 4¾ lbs during month he was taking Belladonna, 2 4/5 grains.

When dose of Belladonna was raised to 3 1/5 grains he gained 8 lbs during the month, and another 4 lbs when taking Belladonna, 3 3/5 grains, next month.

Belladonna being given in 4 grain doses daily the following month, he lost 4½ lbs, but gained 7½ lbs next month, when dose of Belladonna was raised to 4 2/5 grains daily.

The last month, when taking Belladonna, 4 4/5 grains daily, he gained 9 lbs.

His average weight during the 12 months when he was taking Belladonna in doses varying from 2/5 of grain to 4 4/5 grains, was 1095 lbs; and during that time the highest weight recorded was 1121 lbs, being his weight during month when he was taking Belladonna, 4 4/5 grains.

The first 2 months, when Bromide of Potassium, 45 grains daily, was substituted for Belladonna, his average weight was 1110 lbs.

The next 2 months, when taking Potassium Bromide, 60 grains daily, he only gained 4 lbs, his average weight being 1114 lbs.

The dose of Potassium Bromide being raised to 90 grains daily for next 3 months, he gained 65 lbs, his average weight being 1179 lbs.

The following 3 months, when dose of Potassium Bromide was 120 grains daily, his average weight was 1190 lbs, being an increase of 11 lbs on previous 3 months.

The next month, while taking Potassium Bromide, 135 grains daily, he lost 26 lbs as compared with average weight of previous 3 months; and during last month, when taking Potassium Bromide, 150 grains daily, he lost 10¾ lbs as compared with previous month.

His average weight during the 12 months, when he was taking Potassium Bromide in doses varying from 45 to 150 grains daily, was 1155 lbs, being 34 lbs more than his average weight during the 12 months when taking Belladonna, shown as follows:-

	Average weight.
1st 12 months taking Belladonna	1121
2nd 12 " " Potassium Bromide	1155.

The highest recorded weight for any month during the 12 months when taking Potassium Bromide was 1214 lbs, being his weight during first month when taking drug, 120 grains daily.

<u>The effect of Belladonna followed by Potassium Bromide on the character of his fits.</u>

From his admission in 1900 up to December 24 1903, he was in the habit of having fairly slight fits; if sitting on a seat he always rolled quietly off on to the floor, turned over once, or perhaps twice, seldom more than

twice, and then rose up and appeared little the worse.

During the 12 months he was taking Belladonna there was no alteration in the character of his fits, they occurred in exactly the same manner as previously.

During the 12 months he was taking Potassium Bromide his fits occurred as usual until the dose was raised to 40 grains daily, when his fits became less severe and he did not always fall.

The effect of Belladonna followed by Potassium Bromide on his Mental Condition between the fits.

Previous to being treated with Belladonna he was lost and confused and unable to converse, always quiet and giving no trouble, sat idly in the ward, doing nothing to employ or amuse himself.

During the 12 months he was taking Belladonna his mental condition was unchanged, and was in no way benefited by taking this drug.

During the 12 months, when taking Potassium Bromide, his mental condition was unaltered until the dose was raised to 135 grains daily, when he became dull and stupid, and when dose was raised further to 150 grains daily, he became more so, but was always able to take his medicine, his mental condition not being such as to necessitate its cessation.

The effect of Belladonna followed by Potassium Bromide on his General Health.

During the 12 months he was taking Belladonna, his

general health was good; he put on weight and took his food and slept well, and at no period during the treatment did he show any symptoms of poisoning from the drug; his pupils were unchanged and he complained of no dryness about throat.

During the 12 months he was taking Bromide of Potassium, his general health continued good until he was taking 150 grains daily, when he did not enjoy his food so well, and at times refused it; he was shaky and did not look well, being very heavy and dull.

Case 2.

S.W., admitted on January 3rd, 1899, aged 32 years.

Previous History - Has been an epileptic for last 27 years; lately, after fits, has become vicious and dangerously inclined.

Family History - Unknown.

Mental State - On admission was suffering from Mania with hallucinations of sight and hearing; is now demented, being weak and childish, dull and confused and liable to outbursts of excitement when she becomes dangerous.

Physically - well nourished, organs appear healthy.

Doses of Belladonna followed by Potassium Bromide given in this Case.

From	Dec.24, 1903	to	Jan.24, 1904	No medicine administered			
"	Jan.24, 1904	"	Feb.24, "	Belladonna	2/5	of a grain	once daily
"	Feb.24, "	"	March 24, "	"	4/5	"	"
"	March 24, "	"	April 24, "	"	1 1/5	grains	"
"	April 24, "	"	May 24, "	"	1 3/5	"	"
"	May 24, "	"	June 24, "	"	2	"	"
"	June 24, "	"	July 24, "	"	2 2/5	"	"
"	July 24, "	"	Aug.24, "	"	2 4/5	"	"
"	Aug.24, "	"	Sept.24, "	"	3 1/5	"	"
"	Sept.24, "	"	Oct.24, "	"	3 3/5	"	"
"	Oct..24, "	"	Nov.24, "	"	4	"	"
"	Nov.24, "	"	Dec.24, "	"	4 2/5	"	"
"	Dec.24, "	"	Jan.24, 1905	"	4 4/5	"	"
"	Jan.24, 1905	"	March 24, "	Potassium Bromide	15	grains	thrice daily
"	March 24, "	"	May 24, "	"	20	"	
"	May 24, "	"	Aug.24, "	"	30	"	
"	Aug.24, "	"	Nov.24, "	"	40	"	
"	Nov.24, "	"	Dec.24, "	"	45	"	
"	Dec.24, "	"	Jan.24, 1906	"	50	"	

The Belladonna pills were given at 9 a.m. every morning.

The effect of Belladonna followed by Potassium Bromide on the number of her fits.

The table giving her yearly fits since admission, shows Day and Night convulsions per year as follows:-

	Day	Night	Total
in 1899 (from January 3)	641	182	823
" 1900	1054	378	1432
" 1901	914	364	1278
" 1902	964	468	1439
" 1903	1021	475	1496
" 1904	184	414	594
" 1905	71	233	304

From her admission in January 1899 up to December 1903, she had a yearly average of 1293 fits.

When Belladonna treatment was commenced on January 24 1904, they did not diminish markedly in number until dose was raised to 2 grains daily, when there was a decided reduction in the number of her day fits; and during the months of July, August, September, and October of 1904, while taking Belladonna from 2 to 4 grains daily, she had only one day fit, and during the year 1904 her day fits were reduced 837 as compared with the previous year. The action of the drug on her night fits was not nearly so marked; they were reduced during the year she was taking Belladonna but only by 64 as compared with previous year, having an average of 34 each month.

When Bromide of Potassium was substituted for Belladonna, there was a slight increase in her day fits, those during the night continuing with equal frequency until

the third month when taking Bromide of Potassium, grains 30 daily, when both her day and night fits markedly diminished in number, and from this time onwards her day fits kept low until, during November and December of 1905, and January of 1906, they ceased altogether; her night fits also kept comparatively low after July 1905 to December 1905, and during January 1906 they ceased entirely.

The effect of Belladonna followed by Potassium Bromide on her Temperature.

The following table shows her average morning and evening temperature per month, while taking Belladonna followed by Potassium Bromide, and doses given:-

Daily doses of Ext Bella. Pulo Fol Bella. per month.	Average temperature per month.	M	N.
	Average temperature for month when no medicine taken	96.7	97
2/5 of grain		96.5	97
4/5 "		96.7	96.8
1 1/5 grains		96.4	96.6
1 3/5 "		96.4	96.5
2 "		96.4	97
2 2/5 "		97.2	97.5
2 4/5 "		97.4	97.8
3 1/5 "		97.4	97.5
3 3/5 "		97.4	97.1
4 "		97.7	97.8
4 2/5 "		97.1	96.9
4 4/5 "		97.1	97.2
Pot. Brom. doses daily per month.			
45 grains		97.3	97.3
45 "		97.5	97.5
60 "		97.4	97.3
60 "		97	96.8
90 "		97.1	97.1
90 "		96.7	96.9
90 "		96.7	96.9
120 "		96.8	96.8
120 "		96.5	96.8
120 "		96.7	96.8
135 "		96.8	96.6
150 "		96.8	97.2

The effect of Belladonna followed by Potassium Bromide on her Temperature.

During the month when taking no medicines her average temperature was 96.7 in the morning and 97 at night.

The next month, when taking Belladonna, 2/5 grain daily, there was a slight fall in her morning temperature to 96.5, her evening temperature being unchanged.

The following month her average morning temperature rose to 96.7, while there was a slight evening fall to 96.8, when taking Belladonna, 4/5 of grain daily, and when taking Belladonna, 1 1/5 grains the next month, her average temperature fell to 96.4 in morning and to 96.6 at night.

The following month her average morning and evening temperatures were practically unchanged, being 96.4 in morning and 96.5 at night, when taking Belladonna, 1 3/5 grains daily.

The dose of Belladonna being raised to 2 grains daily next month, her average morning temperature was the same, being 96.4, while her evening temperature rose to 97; and the following month when taking 2 2/5 grains daily, her average temperature rose to 97.2 in morning and 97.5 in the evening.

The next month her average temperature continued to rise, being 97.4 in the morning and 97.8 at night, when taking Belladonna, 2 4/5 grains daily, and when taking Belladonna, 3 1/5 grains, the following month, her average morning temperature remained unchanged, while her evening temperature fell to 97.5.

The next month, when dose of Belladonna was raised to 3 3/5 grains daily, her average morning temperature still continued the same, being 97.4, while in the evening it fell to 97.1.

The following month, while taking Belladonna, 4 grains daily, her average temperature rose to 97.7 in the morning and to 97.8 at night, but when dose was raised to 4 2/5 grains daily of Belladonna, her average temperature fell to 97.1 in the morning and to 96.9 at night.

The last month, while taking Belladonna, 4 4/5 grains daily, her average morning temperature was unchanged, being 97.1, while her evening temperature rose to 97.2.

During the 12 months she was taking Belladonna in doses varying from 2/5 to 4 4/5 grains daily, her average morning temperature was 96.9, and her average evening temperature 97.1.

The highest average temperature recorded for any month during this time was 97.8, being her average temperature during the 7th and 10th months, when taking Belladonna, 2 4/5 grains and 4 grains each month, respectively.

During the first 2 months, when taking Bromide of Potassium, grains 45 daily, in place of Belladonna, her average temperature was 97.4, and in the evening also 97.4.

The next 2 months, when taking Potassium Bromide, 60 grains daily, her average temperature fell to 97.2 in morning and 97 at night.

The following 3 months, when dose of Potassium Bromide was raised to 90 grains daily, her average temperature

continued to fall, being 96.8 in the morning and 96.9 at night.

The next 3 months, when taking Potassium Bromide, 120 grains daily, her average morning temperature continued to fall, being 96.6, while her evening temperature also fell to 96.8.

The next month Potassium Bromide was given in 135 grain doses daily, when her average temperature rose to 96.8 in morning, and fell to 96.6 at night as compared with previous 3 months.

The last month, while taking Potassium Bromide, 150 grains daily, her average morning temperature was unchanged at 96.8, while her evening temperature rose to 97.2 as compared with previous month.

During the 12 months when taking Potassium Bromide in doses varying from 45 to 150 grains daily, her average morning temperature was 96.7 and 97 at night.

The highest recorded temperature during these months was 97.5, being her average morning and evening temperature during second month, when taking Potassium Bromide, grains 45 daily.

This shows that there was little difference in the average temperature during the first 12 months, when taking Belladonna, and last 12 months, when taking Bromide of Potassium, shown as follows:-

		M	N	
1st	12 months when taking Belladonna	96.9	97.1	av.temper.
2nd	12 " " " Potassium Bromide	96.7	97	"

The effect of Belladonna followed by Potassium Bromide on her Pulse Rate.

The following table shows her average Pulse Rate per month, counted night and morning, while taking Belladonna followed by Potassium Bromide, and doses given:-

Daily doses of Ext Bella. Pulo Fol Bella. per month	Average pulse rate during month when no medicine taken	M	N
		91	92
2/5 of grain		92	92
4/5 "		98	88
1 1/5 grains		92	97
1 3/5 "		87	84
2 "		88	92
2 2/5 "		86	85
2 4/5 "		88	89
3 1/5 "		85	88
3 3/5 "		81	80
4 "		88	82
4 2/5 "		82	83
4 4/5 "		80	79
Pot. Brom. doses daily per month.			
45 grains		81	81
45 "		81	83
60 "		81	81
60 "		82	83
90 "		81	82
90 "		82	82
90 "		82	82
120 "		82	82
120 "		84	85
120 "		82	81
135 "		82	82
150 "		81	82

During the month when no medicine was taken, her average pulse rate was 91 in the morning and 92 at night.

The next month, when taking Belladonna, 2/5 of grain daily, her average pulse rate rose to 92 in morning, while in the evening there was no change, being 92.

The following month her average pulse rate rose to 98 in the morning, but fell to 88 in the evening, while taking Belladonna, 4/5 of grain daily; when taking 1 1/5

grains daily of Belladonna, her average morning pulse rate fell to 92, while it rose to 97 in the evening.

The next month, when taking 1 3/5 grains of Belladonna daily, her average pulse rate fell to 87 in morning and to 84 at night, but next month rose to 88 in morning and 92 at night, when dose of Belladonna was raised to 2 grains daily.

The following month, when taking Belladonna, 2 2/5 grains daily, her average pulse rate fell to 86 in morning and 85 at night, and rose to 88 in morning and 89 at night next month when taking Belladonna, 2 4/5 grains daily.

When dose of Belladonna was raised to 3 1/5 grains next month, her average pulse rate fell to 85 in morning and to 88 in the evening, and continued to fall next month to 81 in morning and to 80 at night, when taking Belladonna, 3 3/5 grains daily.

The following month, when Belladonna was given in 4 grain doses daily, her average pulse rate rose to 88 in morning and to 82 at night, and next month fell in morning to 82, while in evening it rose to 83, when taking Belladonna, 4 2/5 grains daily.

The last month, when taking 4 4/5 grain doses of Belladonna daily, her pulse rate fell to 80 in morning and to 79 at night.

During the 12 months when she was taking Belladonna in doses varying from 2/5 of grain to 4 4/5 grains, her average morning pulse rate was 87 and in evening 86.

The highest average pulse rate recorded for any month during this time was 98, being her average morning pulse

rate during month when taking Belladonna, 4/5 of grain daily.

The first 2 months, when Bromide of Potassium was substituted for Belladonna in 45 grain doses daily, her average pulse rate was 81 in the morning and 82 at night; the next 2 months her average pulse rate was unchanged, being 81 in morning and 82 at night, when taking Bromide of Potassium, 60 grains daily.

The following 3 months her average pulse rate still continued unchanged, being 81 in morning and 82 at night, when dose of Potassium Bromide was 90 grains daily.

When dose of Potassium Bromide was raised to 120 grains daily the next 3 months, her average pulse rate was still little altered, being 82 in morning and 82 at night.

The next month, when taking Potassium Bromide, 135 grains daily, her average pulse rate was 82 in morning and 82 at night, being the same as compared with previous 3 months.

The last month, when taking Bromide of Potassium, 150 grains daily, there was still practically no change in her average pulse rate as compared with previous month, being 81 in morning and 82 at night.

During the 12 months she was taking Potassium Bromide in doses varying from 45 to 150 grains daily, her average morning pulse rate was 80 and in the evening 81, showing little change from average pulse rate when taking Belladonna the previous 12 months, seen as follows:-

	Average pulse rates	
	M	N
1st 12 months, taking Belladonna	87	86
2nd 12 " " Potassium Bromide	80	81

The highest pulse rate recorded during the 12 months, when taking Potassium Bromide, was 85, being her average evening pulse rate during 9th month, when taking drug, 120 grains daily.

The effect of Belladonna followed by Potassium Bromide on her Bodily Weight.

The following table shows her weight per month while taking Belladonna followed by Potassium Bromide, and doses given:-

Daily doses of Ext Bella. Pulo Fol Bella. per month.	Weight per month in lbs.
Weight during month when no medicine taken	783
2/5 of grain	802
4/5 "	888
1 1/5 grains	786½
1 3/5 "	796½
2 "	774½
2 2/5 "	775½
4 4/5 "	753½
3 1/5 "	758½
3 3/5 "	740
4 "	747
4 2/5 "	655
4 4/5 "	729
Pot. Brom. doses daily per month.	
45 grains	759
45 "	791½
60 "	808½
60 "	844½
90 "	843½
90 "	796
90 "	779
120 "	838¾
120 "	852
120 "	906¾
135 "	906
150 "	935

During the month when no medicine was administeredher weight was 783 lbs.

The next month, when taking Belladonna, 2/5 of grain

daily, she gained 19 lbs, and following month gained .86 lbs, when taking Belladonna, 4/5 grain daily, while taking 1 1/5 grains daily of Belladonna she lost 102 lbs, and next month gained 10 lbs when taking Belladonna, 1 3/5 grains daily.

The following month she lost 22 lbs, when taking Belladonna, 2 grains daily, and gained 1 lb when dose of Belladonna was raised to 2 2/5 next month.

When Belladonna was given in 2 4/5 grains she lost 22 lbs during the month, and gained 5 lbs the next month, when taking 3 1/5 grains of Belladonna, but lost 18 lbs when during month dose of Belladonna was 3 3/5 grains.

The following month she gained 7 lbs, when dose of Belladonna was raised to 4 grains daily, but lost 92 lbs the next month, when dose of Belladonna was 4 2/5 grains daily; and last month, when taking Belladonna, 4 4/5 grains daily, she gained 74 lbs.

During the 12 months she was taking Belladonna in doses varying from 2/5 grain to 4 4/5 grains, her average weight was 768 lbs, her highest weight for any month during that time was 888 lbs, being her weight during month when taking Belladonna, 4/5 grain daily.

During the first 2 months, when Bromide of Potassium, 45 grains daily, was given in place of Belladonna, her average weight was 775 lbs.

The following 2 months she gained 51 lbs, her averge weight being 826 lbs, when taking Potassium Bromide, 60 grains daily.

The next 3 months, when Potassium Bromide was given,

90 grains daily, she lost 20 lbs, her average weight being 806 lbs, but gained 59 lbs the next 3 months, when taking Potassium Bromide, 120 grains daily, her average weight being 865 lbs.

The following month, when taking Potassium Bromide, 135 grains daily, she gained 41 lbs as compared with average weight of previous 3 months; and last month she gained another 35 lbs as compared with previous month when dose was finally raised to 150 grains daily.

During the 12 months, while taking Bromide of Potassium in doses varying from 45 to 150 grains daily, her average weight was 838 lbs, being 70 lbs more than average weight during previous 12 months, when taking Belladonna, shown as follows:-

	Average weight
1st 12 months, taking Belladonna	768 lbs
2nd 12 " " Potassium Bromide	838 "

During the 12 months she was taking Potassium Bromide the highest recorded weight for any month was 935 lbs, being her weight during month when taking Potassium Bromide, 150 grains daily.

<u>The effect of Belladonna followed by Potassium Bromide on the Character of her fits.</u>

This patient has fits of a very similar character to W,M - other case treated by Belladonna pills - namely, that if she is sitting or standing, she sinks slowly to the ground, turns over two or three times from side to side and then rises up.

During the 12 months, when taking Belladonna, there was no alteration in the character of her fits, they occurred in an exactly similar manner and lasted the same time.

While taking Bromide of Potassium the following 12 months the character of her fits was still unchanged.

The effect of Belladonna followed by Potassium Bromide on her Mental State between the fits.

This patient's mental state, prior to treatment with Belladonna, was as follows:- On admission, and for some 3 years later, she was suffering from Mania, having delusions and hallucinations: this condition gradually gave way to one of Dementia, when she became weak-minded and childish, and liable to occasional outbursts of excitement.

While taking Belladonna for 12 months, there was practically no change mentally; she continued in the same childish manner, and periods of excitement were not increased during these months.

The next 12 months, when taking Bromide of Potassium, there was no mental alteration until dose was increased to 150 grains daily, when she became very heavy, dull, stupid and more irritable.

The effect of Belladonna followed by Potassium Bromide on her General Health.

During the 12 months she was taking Belladonna her health was fairly good. She often complained of dryness of throat, but her pupils were never, during treatment,

unduly dilated, and it was simply because I drew her attention to her throat, by frequent crying, that made her complain of this discomfort, for she often continued to do so when taking Bromide of Potassium the following year; so that at no time did she show any bad effects from Belladonna, not even when taking doses of 4 4/5 grains daily; she took her food and slept well.

When taking Bromide of Potassium her health continued unchanged until dose of 150 grains daily was reached, when she became shaky and did not take her food so well.

Case 3. Treated by Tincture of Belladonna.

J.S., admitted March 30, 1900, aged 13 years.

Previous History - was well up to 5 years of age when his schoolmaster struck him on forehead with a ruler, the blow was succeeded by a fit, and fits have continued at intervals since. Lately, has developed violent propensities, especially towards other children.

Family History - Great-aunt was an epileptic. No history of Insanity, Phthisis, or Intemperance.

Mental Condition - Suffering from Dementia, has a dull, vacant expression, and is lacking in reaction to external impressions; his cerebration is sluggish, and his replies to questions betray marked deficiency in general intelligence, is unable to dress or undress himself, and is perverted in his habits.

Physically - well nourished; organs appear healthy.

Doses of Tin.Belladonnae followed by Potassium Bromide given in this Case.

From December 24, 1903, to January 24, 1904. No medicines administered.

From Jan.24, 1904	to	March 24, 1904,	Tin.Belladonna	M 5	three	times daily
" March 24, "	"	June 24, "	"	M 10	"	
" June 24, "	"	Sept.24, "	"	M 15	"	
" Sept.24, "	"	Dec.24, "	"	M 20	"	
" Dec.24, "	"	Jan.24, 1905	"	M 25	"	
" Jan.24, 1905	"	March 24, "	Potass.Bromide	gr.15	"	
" March 24, "	"	May 24, "	"	" 20	"	
" May 24, "	"	Aug.24, "	"	" 30	"	
" Aug.24, "	"	Nov.24, "	"	" 40	"	
" Nov.24, "	"	Dec.24, "	"	" 45	"	
" Dec.24, "	"	Jan.24, 1906	"	" 50	"	

The doses of Belladonna were given regularly until the second month when taking 20 M 3 times daily; by this time he was well under the influence of the drug, and from this time onwards it was given intermittently, it being necessary, at times, to suspend the administration of the drug for a few days.

J. S.

Number of day and night fits since his admission on March 30,1900 to Jan. 1906.

	Jan. d. n.	Feb. d. n.	Mar. d. n.	April d. n.	May d. n.	June d. n.	July d. n.	Aug. d. n.	Sep. d. n.	Oct. d. n.	Nov. d. n.	Dec. d. n.	Total of d. n.	Total.
1900.	- -	- - -	- -	25. 50.	11.28.	7.18.	6. 21.	6. 28.	2. 28.	2. 13.	2. 14.	1. 13.	62.213.	275.
1901.	4.21.	5.12.	4. 9.	11. 14.	4. 9.	4.12.	11. 20.	14. 12.	9. 12.	10. 17.	10. 7.	14. 7.	100.162.	263.
1902.	22.16.	21.18.	31. 19.	41. 25.	31.24.	41.23.	37. 36.	36. 37.	30. 29.	36. 36.	40. 30.	35. 34.	401.327.	728.
1903.	18.15.	22.14.	36. 32.	10. 29.	26.42.	32.28..	22. 40.	27. 34.	18. 34.	23. 39.	224.299.	51. 7. all med. stopped.	509.613.	1122.
1904.	59.13. Tin.Bel. M.5.	53.69. Tin.B. M.5.	137.135. Tin.B. M.10.	72. 42. Tin.B. M.10.	79.72. Tin. B. M.10.	69.75. Tin.B. M.15.	69. 56. Tin.B. M.15.	126.134. Tin.B. M.15.	93. 71. Tin. B. M.20.	40. 95. Tin. B. M.20.	83. 72. Tin.B. M.20.	49. 57. Tin.B. M.25.	939.751.	1690.
1905.	59.81. Pot.B. gr.15.	31.36. Pot.B. gr.15.	87. 98. Pot.B. gr.20.	77. 69. Pot.B. gr.20.	81.90. Pot.B. gr.30.	96.85. Pot.B. gr.30.	91. 60. Pot.B. gr.30.	95.107. Pot.B. gr.40.	110. 73. Pot.B. gr.40.	91. 74. Pot.B. gr.40.	82. 40. Pot.B. gr.45.	30. 70. Pot.B. gr.50.	930.883.	1813.
1906.	9. 5. Pot.Brom. gr.50.													

Doses of Tin.Belladonnae and Potassium Bromide given thrice daily after food.

The effect of Belladonna followed by Potassium Bromide on the number of his fits.

The table giving his fits from admission shows his day and night convulsions per year, as follows:-

	Day	Night	Total
in 1900 (from March 30)	62	213	275
" 1901	100	163	263
" 1902	401	327	728
" 1903	509	613	1122
" 1904	939	751	1690
" 1905	930	883	1813

From his admission in March 1900 up to December 1903, he had a yearly average of 596 fits.

When the treatment by Belladonna was commenced in January 1904, his day fits soon began to increase in number, and during March he had a total of 137; after this they kept very high in number until October when there was a slight numerical decrease, but they again increased next month to 83, and during 1904, while taking Belladonna, he had 939 day fits, being an increase of 430 as compared with previous year. His night fits were also increased but to a much less extent, being 138 more than year 1903.

The next 12 months, when taking Potassium Bromide his day fits still occurred with marked frequency, giving a total of 930 for year 1905, being only 9 less than previous year, when taking Belladonna. His night fits increased to a great extent during 1905, being 132 more than in year 1904. When dose of Potassium Bromide was finally

raised to 150 grains daily, both his day and night fits diminished, and during the 21 days of January 1906, he only had 9 day and 5 night fits.

The effect of Belladonna followed by Potassium Bromide on his Temperature.

This table shows his average morning and evening temperature per month while taking Belladonna followed by Potassium Bromide, and doses given:-

Doses of Tin.Bella. daily per month.	Average temperature during month when no medicine taken	Average temperature per month. M	N
15 min.		96.9	97.1
15 "		96.7	96.6
30 "		96.7	96.9
30 "		96.5	96.5
30 "		96.5	96.8
45 "		97.1	98
45 "		97	97.9
45 "		97	97.6
60 "		96.8	97.3
60 "		96.8	97.3
60 "		96.7	97
75 "		96.3	96.9
Pot.Brom.doses daily per month.		96.7	97
45 grains		96.3	96.9
45 "		96.6	97.1
60 "		96.7	97.3
60 "		96.7	97.4
90 "		96.2	97.4
90 "		96.7	97.6
90 "		97.6	97.2
120 "		97.5	97.1
120 "		96.9	96.3
120 "		96.3	96.3
135 "		96.3	97.1
150 "		99	97

During the month when no medicine was taken his average morning temperature was 96.9 and 97.1 in the evening. The next 2 months, while taking Belladonna, 15 min.

daily, his average temperature fell to 96.7 in the morning and to 96.7 at night.

The following 3 months his average temperature was unchanged in the morning, being 96.7, and rose to 97.1 in the evening, while taking Belladonna, 30 min.daily.

The dose of Belladonna being raised to 45 min. daily for next 3 months, during which time his average morning temperature fell to 96.9, while his evening temperature rose to 97.9.

The last month when taking Belladonna, 75 min.daily, his average temperature fell to 96.7 in morning, and to 97 at night as compared with average temperature of previous 3 months.

During the 12 months he was taking Tin.Belladonna in doses varying from 15 to 75 min.daily, his average morning temperature was 96.7 and 97.1 at night.

The highest recorded average temperature during that time was 98, being his average evening temperature during 5th month, while taking Belladonna, 30 min.daily.

The next 2 months, when Potassium Bromide was substituted for Belladonna in 45 grain doses daily, his average temperature was 96.4 in morning and 97 at night.

The next 2 months his average morning temperature rose to 96.7, and his evening temperature to 97.3, while taking Potassium Bromide, grains 60 daily, and his average temperature continued to rise the following 3 months to 96.8 in morning, and to 97.4 at night, when taking Potassium Bromide, 90 grains daily.

The following 3 months, when Potassium Bromide was

given in 120 grain doses daily, his average morning temperature rose to 96.9, while his evening temperature fell to 96.4.

The next month, when dose of Potassium Bromide was raised to 135 grains daily, his average temperature fell in the morning to 96.3, while it rose at night to 97.1 as compared with average temperature of previous 3 months.

The last month, when Potassium Bromide was given in 150 grain doses daily, his average temperature rose to 99 in morning, and fell to 97.1 at night as compared with average temperature of previous month.

During the 12 months he was taking Potassium Bromide in doses varying from 45 to 150 grains daily, his average morning temperature was 96.1 and 97 in the evening, showing little difference as compared with average temperatures of previous 12 months, when taking Belladonna, as shown below:-

	Average temperature	
	M	N
1st 12 months when taking Belladonna	96.7	97.1
2nd 12 " " " Potassium Bromide	96.1	97.

The highest recorded average temperature during the 12 months, when taking Bromide of Potassium, was 99, being his average morning temperature while taking drug, 150 grains daily.

The effect of Belladonna followed by Potassium Bromide on his Pulse Rate.

This table shows his average morning and evening pulse

rate per month while taking Belladonna followed by Potassium Bromide, and doses given:-

Doses of Tin.Bella. daily per month.	Average pulse rate during month when no medicines given	Average Pulse Rate per month. M	N
15 min.		91	97
15 "		88	92
30 "		102	100
30 "		81	94
30 "		89	98
45 "		95	104
45 "		86	98
45 "		92	100
60 "		85	90
60 "		85	91
60 "		80	85
75 "		83	87
Pot.Brom.dose daily per month.		84	83
45 grains		75	83
45 "		79	82
60 "		76	84
60 "		84	94
90 "		77	98
90 "		78	91
90 "		80	86
120 "		76	80
120 "		76	82
120 "		80	81
135 "		81	91
150 "		98	94

The effect of Belladonna followed by Potassium Bromide on his Pulse Rate.

During the month when taking no medicine his average pulse rate was 91 in morning and 97 at night.

The next 2 months, when Belladonna, 15 min.daily, was given, his average pulse rate fell to 90 in the morning and to 91 in the evening.

The following 3 months his average morning pulse rate continued to fall, being 87, while his average evening pulse rate rose to 98 when taking Belladonna, 30 min.daily.

The next 3 months, when dose of Belladonna was raised

to 45 min.daily, his average morning pulse rate was unchanged, being 87, while his evening pulse rate fell to 96.

Belladonna being given 60 min.daily for next 3 months, his average morning pulse rate fell to 86 and to 87 at night.

The last month, while taking Belladonna, 75 min.daily, his average pulse rate fell to 84 in morning and to 83 in evening as compared with average pulse rate of previous 3 months.

During the 12 months he was taking Belladonna in doses varying from 15 to 75 min, his average morning pulse rate was 87 and 92 in the evening; the highest average pulse rate recorded for any month during this time was 104, being his average evening pulse rate during 5th month, when taking Tin.Belladonna, 30 min.daily.

The next 2 months, when Bromide of Potassium in 45 grain doses daily, was given in place of Belladonna, his average pulse rate was 72 in the morning and 82 at night.

The following 2 months there was a rise in his average pulse rate to 79 in the morning and to 89 at night, when taking Potassium Bromide, 60 grains daily.

The next 3 months his average morning pulse rate fell to 75, while in the evening it rose to 91 when Potassium Bromide was given 90 grains daily.

The dose of Potassium Bromide being raised to 120 grains daily for next 3 months, his average pulse rate fell to 74 in morning and to 81 in evening.

The next month, when taking Potassium Bromide, 135 grains daily, his average pulse rate rose to 81 in the

morning and to 91 in the evening as compared with average pulse rate of previous 3 months.

The last month, when taking Potassium Bromide, 150 grains daily, his average pulse rate continued to rise, being 98 in morning and 94 at night as compared with previous month.

During the 12 months, when taking Potassium Bromide in doses varying from 45 to 150 grains daily, his average morning pulse rate was 80 and 87 in the evening, this was a lower average pulse rate as compared with that of previous 12 months, when taking Belladonna, shown as follows:-

	Average Pulse Rates.	
	M	N
1st 12 months when taking Belladonna	87	92
2nd 12 " " " Potass.Bromide	80	87

The highest recorded pulse rate during 12 months, when taking Potassium Bromide, was 98, being his average evening pulse rate during 5th month, when taking drug, 90 grains daily, and also his average morning pulse rate during last month when dose was raised to 150 grains daily.

The effect of Belladonna followed by Potassium Bromide on his Bodily Weight.

This table shows his weight in lbs per month while taking Belladonna followed by Potassium Bromide, and doses given:-

Doses of Tin. Bella. daily per month.	Weight during month when no medicine administered	Weight per month in lbs.
15 min		954
15 "		990
30 "		930
30 "		911
30 "		954 3/4
30 "		973 1/4
45 "		970 3/4
45 "		978 1/2
45 "		926 3/4
60 "		897 1/4
60 "		900 1/2
60 "		855 3/4
75 "		826 1/2
Pot. Brom. doses daily per mth.		
45 grains		827
45 "		916 3/4
60 "		887 1/4
60 "		851 1/2
90 "		953 1/2
90 "		952
90 "		962 3/4
120 "		983 1/4
120 "		971 3/4
120 "		956
135 "		945
150 "		963

The effect of Belladonna followed by Potassium Bromide on his Bodily Weight.

During the month when no medicine was taken his weight was 954 lbs.

The next 2 months, when Belladonna, 15 min daily was given, he gained 6 lbs, his average weight being 960 lbs.

The following 3 months he lost 14 lbs, his average weight being 946 lbs during time he was taking Belladonna, 30 min daily.

The next 3 months he gained 9 lbs, when dose of Belladonna was 45 min daily, his average weight being 955 lbs.

The following 3 months he lost 71 lbs, when dose of Belladonna was raised to 60 min daily, and last month, when taking Belladonna, 75 min, he lost 58 lbs as compared with average weight of previous 3 months.

During the 12 months he was taking Belladonna in doses varying from 15 to 75 min daily, his average weight was 934 lbs, and the highest weight recorded for any month during that time was 990 lbs, being his weight during first month while taking Belladonna, 15 min daily.

The next 2 months Potassium Bromide, 45 grains daily, was given in place of Belladonna, when his average weight was 921 lbs.

The following 2 months he lost 52 lbs, when taking Potassium Bromide, 60 grains daily, his average weight being 869 lbs, but gained 87 lbs the following 3 months when Potassium Bromide was given in 90 grain doses daily, and gained another 14 lbs the next 3 months when dose of Potassium Bromide was raised to 120 grains daily, his average weight being 970 lbs.

The next month, when taking Potassium Bromide, 135 grains daily, he lost 25 lbs, his weight being 945 lbs as compared with previous 3 months; and the last month there was a gain of 18 lbs, when dose of Potassium Bromide was finally raised to 150 grains.

During the 12 months he was taking Potassium Bromide his average weight was 932 lbs, being only 2 lbs less than average weight for previous 12 months, when taking Belladonna.

1st 12 months, taking Belladonna 934 average weight

2nd 12 " " Potassium Bromide 932 " "

During the 12 months, while taking Potassium Bromide, the highest recorded weight was 983½ lbs, being his weight for 8th month when taking drug, 120 grains daily.

The effect of Belladonna followed by Potassium Bromide on the Character of his fits.

From his admission up to 1903, he was in the habit of having strong fits, all of the Grand Mal type; he always fell down if standing, generally with a cry, the tonic and clonic stages being very severe, and he was comatosed for a considerable time after.

During the 12 months he was taking Belladonna his fits continued with increased severity, the clonic stage was decidedly more marked, and he was comatosed for a greater length of time after.

While taking Bromide of Potassium the next 12 months his fits continued with equal severity until dose was raised to 40 grains daily when they were less severe, the tonic and clonic stages were shortened and he was comatosed for a shorter period subsequently, and this improvement in the character of his fits lasted while he was taking the larger doses of this drug.

The effect of Belladonna followed by Potassium Bromide on his Mental State between the fits.

From his admission up to 1903 this patient was very dull and stupid, unable to reply to questions or do any-

thing for himself in the way of attending to his bodily comforts, but was able to get about and go out in airing court, &c.

During the 12 months when taking Belladonna his mental state could not have been more unsatisfactory, even when taking small doses he was so dull and stupid that he could not be roused, soon became shaky and unable to walk and was kept in bed at times to prevent his falling about. When higher doses were reached, especially during second and third months, when taking 20 and later 25 mins 3 times daily, it frequently became necessary to stop the drug altogether for 2 or 3 days to allow him to recover from its effects, and then resume it again in dose left off. He spent lengthy periods in bed during the last 3 months, when taking Belladonna in large doses. At no time during the 12 months did Belladonna, in any doses, show any power in improving his mental state.

When he was taking Bromide of Potassium the next 12 months, his mental state continued much the same during first month, when he gradually became brighter, and got stronger on his legs and able to get about; and even when taking full doses, 150 grains daily, which dose he stood well, he was bright and quite cheerful, more so than he had been for years previously.

The effect of Belladonna followed by Potassium on his General Health.

His general health kept fairly good until dose of Belladonna was raised to 20 min, when he became very shaky

and could not stand, pupils dilated, and at times he had difficulty in swallowing. These symptoms became much more pronounced the last 3 months, when he was taking Belladonna in 20 and 25 min doses thrice daily; his deglutition became so impaired that it was necessary to feed him with liquid nourishment, and this some days he took very badly, he lay for lengthy periods in bed, taking no notice of his surroundings, and could not be roused.

When taking Bromide of Potassium the next 12 months, his general health steadily improved, and continued to do so even when taking the largest doses.

GENERAL SUMMARY of the Treatment of Epileptic Insanity by Belladonna.

Of the two cases treated by Belladonna Pills, the only one benefited in any way by the drug was S.W., whose day fits during the year she was taking the Belladonna Pills were markedly reduced in number; the character of her fits remained unaltered, and there was no change mentally. In the other case, W.M., treated by Belladonna Pills, his fits occurred with the same frequency and equal severity, and he appeared in no way benefited by the drug.

The case of J.S., treated by Tincture of Belladonna, was much worse in every way during the 12 months he was taking this drug, his fits increased in number and his mental state was highly unsatisfactory.

The most effectual dose of Belladonna for Therapeutic purposes.

In the 2 cases treated by Belladonna Pills, the following were the most effectual doses:-

In case of W.M. During the year he was taking Belladonna Pills he had frequent fits during the months May, June, July, August, September and October, while taking Belladonns in 2, 2 2/5, 2 4/5, 3 1/5, 3 3/5, and 4 grains each month respectively, showing that in his case the most effectual doses of the drug were from 2 to 4 grains daily.

In case of S.W. During the year 1904, when taking Belladonna Pills, her fits, especially during the day, were markedly diminished in number during June, July, August, September and October, when taking Belladonna in 2 2/5, 2 4/5, 3 1/5, 3 3/5 and 4 grains daily each month respectively, showing that the most effectual doses in this case were from 2 2/5 to 4 grains.

These 2 cases demonstrate the fact that the most effectual dose of Belladonna is from 2 to 4 grains daily, as far as the action of the drug in reducing their fits is concerned; and as the drug benefited neither case in any other way it is the only point I have referred to as regards the dose.

Belladonna is the Specific name of a plant. Same but is not meant

In the case of J.S., treated by Tincture of Belladonna; during the 12 months he was taking this drug any dose, small or large, did not benefit him in any way, his fits continuing with equal severity and frequency, and his mental condition becoming worse as dose was raised.

The Use of Belladonna in Epileptic Insanity.

Belladonna, as given according to Trousseau, appears to have the power of reducing the number of fits if they are of a slight nature, as shown in case of S.W.; but it

has, apparently, little action on the mental state, 2 cases showing no mental change when taking pills, and case of J.S. treated by Tin.Belladonna, being decidedly worse mentally during 12 months while taking this drug.

The Action of Belladonna in Epilepsy.

I am unable to say how Belladonna acts in Epilepsy. (1) Ramskill says that"Belladonna is one of the most powerful contractors of the blood vessels of the spinal cord, and its membranes, and has a comparatively feeble action on those of the brain, hence arises its extraordinary adaptability in Epilepsy, where we have dilatations of vessels or turgescence in the Medulla or its neighbourhood."

Bromide of Potassium as compared with Borax in the treatment of Epileptic Insanity.

The effect of these drugs on the following 5 cases may be briefly summarised as follows:-

i A.C. Borax exhibited a marked power in controlling the number of his fits, changing the character of his day seizures from Grand Mal to Petit Mal type, and producing on his mental state a most satisfactory alteration; when Bromide of Potassium was given for 2 months in place of Borax, his fits increased largely in number, and his mental condition became most unsatisfactory, and this was also the case for 4 years previous to Borax treatment, when he was taking Potassium Bromide. I should state that this patient never

(1) Ramskill - Medical Times & Gazette Nov.22, 1862.

had a larger dose than 45 grains of Potassium Bromide daily.

ii. S.M. Borax showed a decided advantage over Bromide of Potassium in reducing the number of his night fits, and when Potassium Bromide was substituted for Borax his fits at once increased in number and kept at a high figure until dose was raised to 50 grains daily, when they diminished in number. Borax had no effect on his mental state, while Bromide of Potassium, in doses of 30 to 40 grains daily, had a soothing mental action.

iii. J.A. Borax and Potassium Bromide reduced her fits about equally, but the latter drug had a much more beneficial action on her mental state when taking from 30 to 40 grains daily.

iv. W.P. During year he was taking Borax his day fits were markedly increased in number and his night fits slightly; when taking Potassium Bromide for 11 months later his fits were not diminished in number until 40 grains daily were given, after that he had few fits, while dose was raised to 45 and 50 grains. Borax had an unsatisfactory mental action while Bromide of Potassium in doses of 30 to 40 grains daily had a most beneficial power mentally.

v M.H. During the year when taking Borax, fits only slightly reduced; next 11 months when Potassium Bromide was given, fits reduced more markedly and her mental state was much better while taking latter drug which she stood well in all doses.

The conclusionsderived from above cases are that, except in case of A.C., Bromide of Potassium had a more

marked power in soothing the mental state, Borax appearing to have more power in reducing nocturnal seizures.

Bromide of Potassium as compared with Bromide of Camphor in the treatment of Epileptic Insanity.

i. B.M.W. During year she was taking Bromide of Camphor she had a large number of fits, being 445 more than previous 9 months; mentally during this time she could not have been worse; the next year when taking Potassium Bromide, her fits gradually diminished until they finally ceased. Mentally she was most comfortable when taking doses from 20 to 40 grains daily.

ii S.A.T. During the year she was taking Bromide of Camphor she had 424 fits, being 333 more than previous year; her mental state during this time was highly unsatisfactory. When taking Potassium Bromide her fits at once diminished in number and finally ceased, and mentally there was marked improvement.

iii J.M. He had the large number of 1343 fits when taking Bromide of Camphor, and was much worse mentally during this time. Next year his fits fell to 831 when taking Bromide of Potassium, and his mental state was much improved.

These cases show that Bromide of Camphor is of little use in Epileptic Insanity, and also the marked advantage Potassium Bromide has over this drug, as all three cases were much benefited by its use after having their fits raised numerically to a large extent, and left in an irritable and unsettled mental state by the use of Bromide of Camphor.

Bromide of Potassium as compared with Belladonna in the treatment of Epileptic Insanity.

i W.M. In this case during the year he was taking Belladonna pills his fits were practically unchanged in severity and number, mentally he was the same; the next year his fits were markedly reduced in number until they ceased for last 2 months when taking Potassium Bromide, his mental state being the same.

ii S.W. During the year she was taking Belladonna Pills her fits were reduced especially those occurring during day, but were still more so next year when taking Potassium Bromide, and when dose was raised to 150 grains daily ceased altogether. There was no marked mental change when taking either drug until Potassium Bromide was given in 150 grains daily when she became dull and stupid and heavy.

iii J.S. During the year he was taking Tin.Belladonna his fits increased to 1690, being 568 more than previous year. The following year when taking Potassium Bromide they increased to 1813, and were markedly diminished in number only when dose was raised to 150 grains daily; his mental state was very much improved during time he was taking Potassium Bromide.

In the three cases Belladonna reduced fits in one case only, and then Potassium Bromide the following year in same case reduced them still more. Belladonna appeared to have little effect mentally whereas Potassium Bromide brought about a marked improvement mentally when following Tin.Belladonna.

The most effectual dose of Potassium Bromide for Therapeutic purposes.

The most of the cases benefited more from doses of 30 to 40 grains daily than higher or lower doses. When dose was raised above 40 grains daily all the cases (except 5) began to show some ill effects from the drug, and this was still more pronounced when dose was raised to 45 and 50 grains daily, the latter dose being badly borne by all cases except 5; in these 5 cases they took the drug in 50 grain doses daily without showing any signs or symptoms of itsnot agreeing with them, and took it for a whole month without missing a single dose.

The Use of Potassium Bromide in Epileptic Insanity.

Bromide of Potassium being the form in which Bromide is generally administered to epileptic patients in this Asylum, it is the preparation of Bromide with which I have had most experience, and there is no doubt that it is a most valuable drug in the treatment of Epileptic Insanity. The 12 cases I have specially treated with this drug were all benefited, generally in a marked manner, except the case of A.C., in whom Borax appeared to have much more effect, not only on his fits but on his mental state.

I quite agree with Clonston,(1) who states that any Physician to an Asylum who does not keep most of his epileptic patients continuously under the influence of the Bromides, deliberately disregards one of the best proved of therapeutic facts.

(1) Clonston - "Clinical Lectures on Mental Diseases" pp.45,6 1904. 6th edition.